



# Welcome to the course of Obstetrics & Gynecology

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# **Obstetrics & Gynecology**

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## ***Chapter 1-2***

# **Female reproductive system**

## **女性生殖系统**



# Female reproductive system

## Contents

- Organization (Anatomy)
- Functions (Physiology)

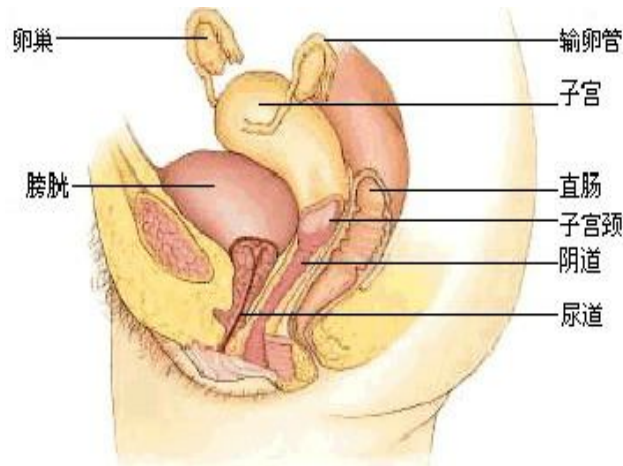
**After learning these two chapters,  
you should be able to :**

- Visualize the anatomical structure of the female reproductive system.
- Describe the hormones that regulate the female reproductive system.
- Explain the sequence of events during the menstrual cycle.

# Chapter 1: Anatomy of the female reproductive system

## Be familiar with

- The pelvic structures
- External and internal genitalia



## Comprehend

- Adjacent organs
- The blood, nerve, and lymphatic supplies to the pelvic structures (self-study)



# Female reproductive system

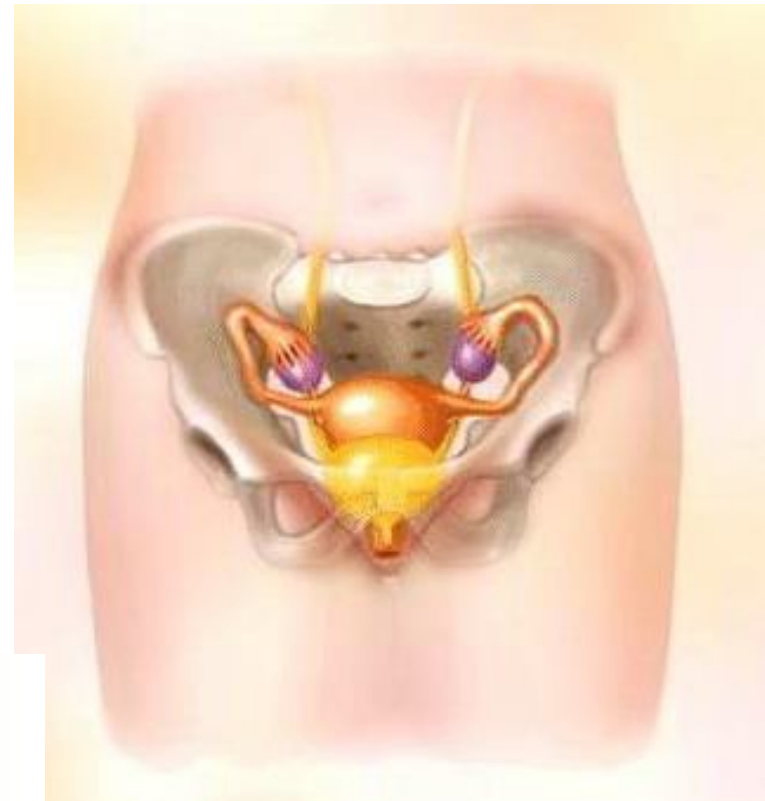
## The Pelvis

- Structures
- Dividing line
- Types

## External genital organs

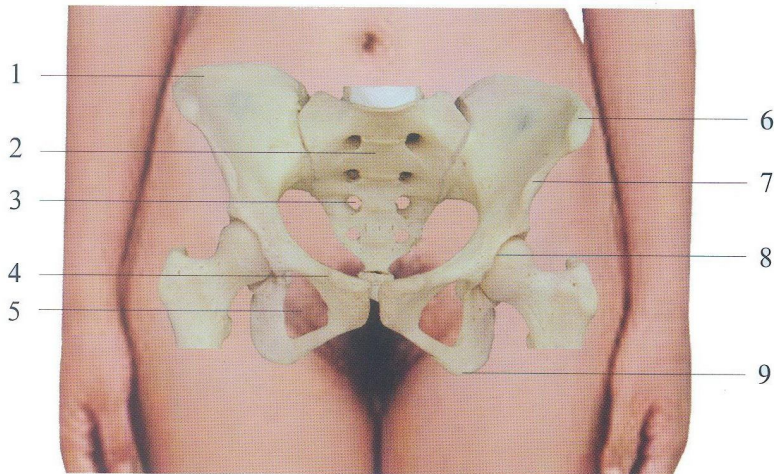
## Internal genital organs

- Vagina
- Uterus
- Fallopian tubes (oviducts)
- Ovaries

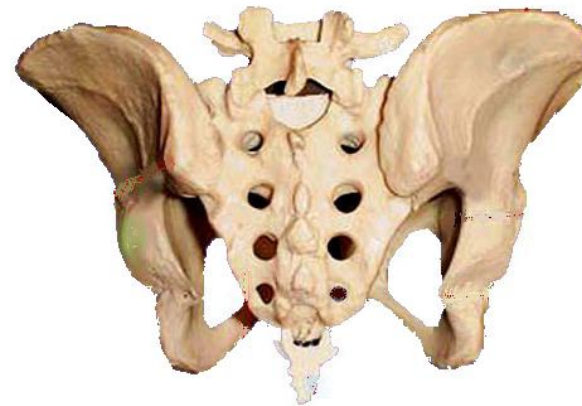
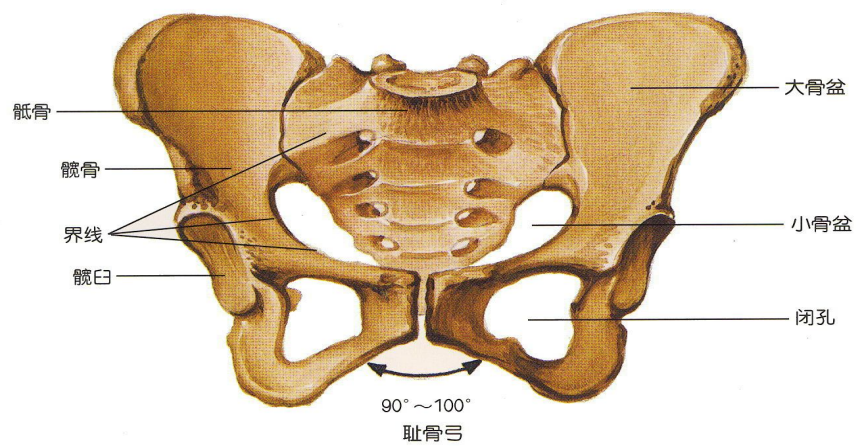
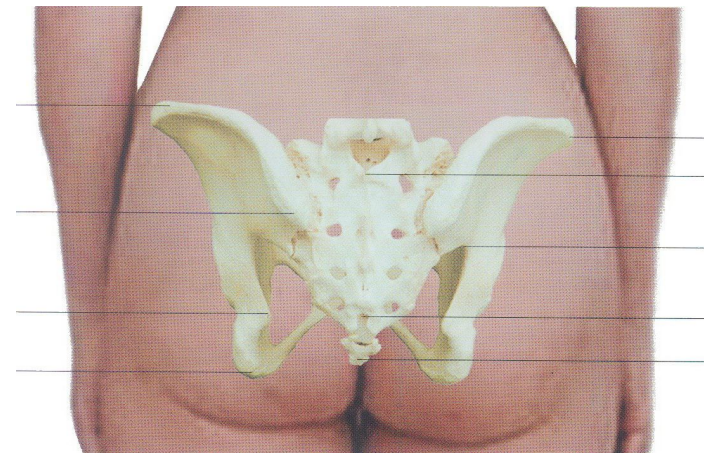


# Bony pelvis

## Anterior view



## Posterior view

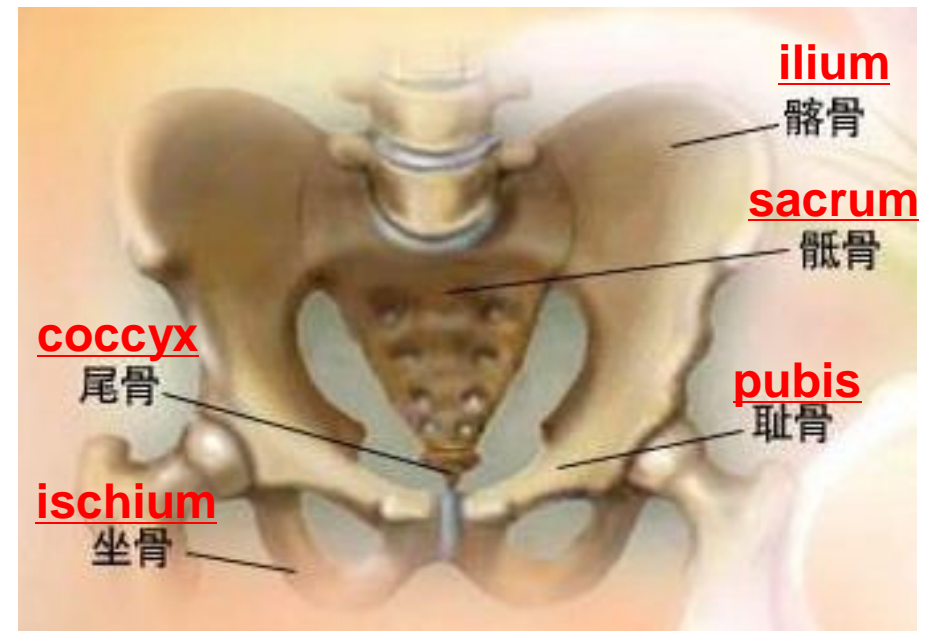




《supper mom's body》

# Bony pelvis: Structures

骶骨 <b>Os sacrum</b>	5 or 6 sacral vertebrae
尾骨 <b>Os coccyx</b>	4 or 5 caudal or coccygeal vertebrae
左右 髌骨 <b>Os coxae (Innominate bone)</b>	左右髌骨 <b>Os ilium</b>
	左右坐骨 <b>Os ischium</b>
	左右耻骨 <b>Os pubis</b>



# Bony pelvis: Joints

## Joints

cartilaginous symphyseal

**Sacro-coccygeal joint**

**Symphysis pubica**

synovial joint

**Sacro-iliac joint**

**Sacro-iliac joint**

骶髂关节

髌骨

骶骨

**Sacro-coccygeal joint**

骶尾关节

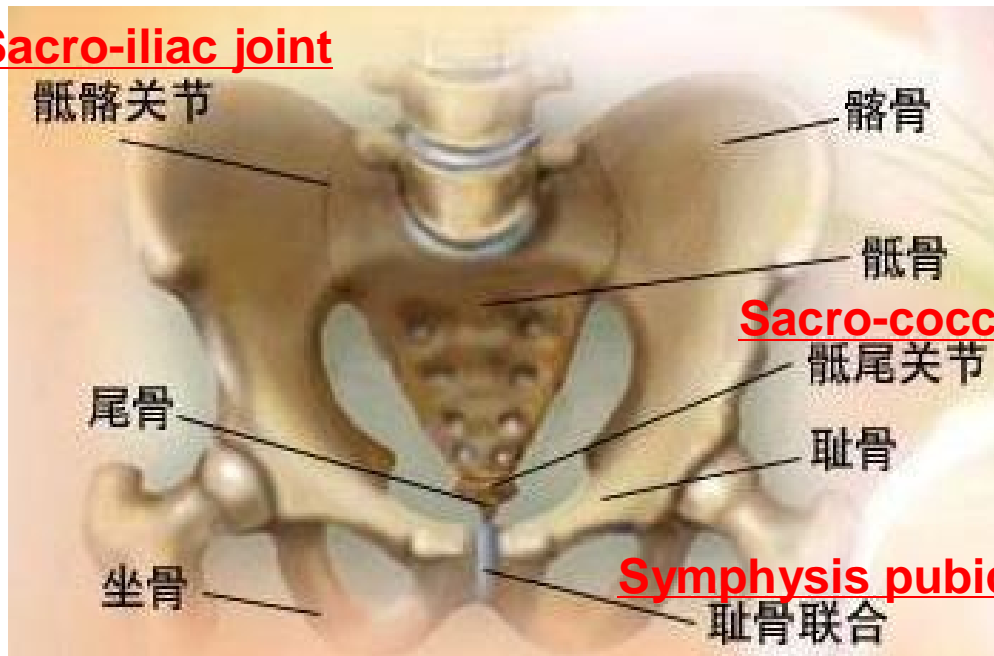
尾骨

耻骨

坐骨

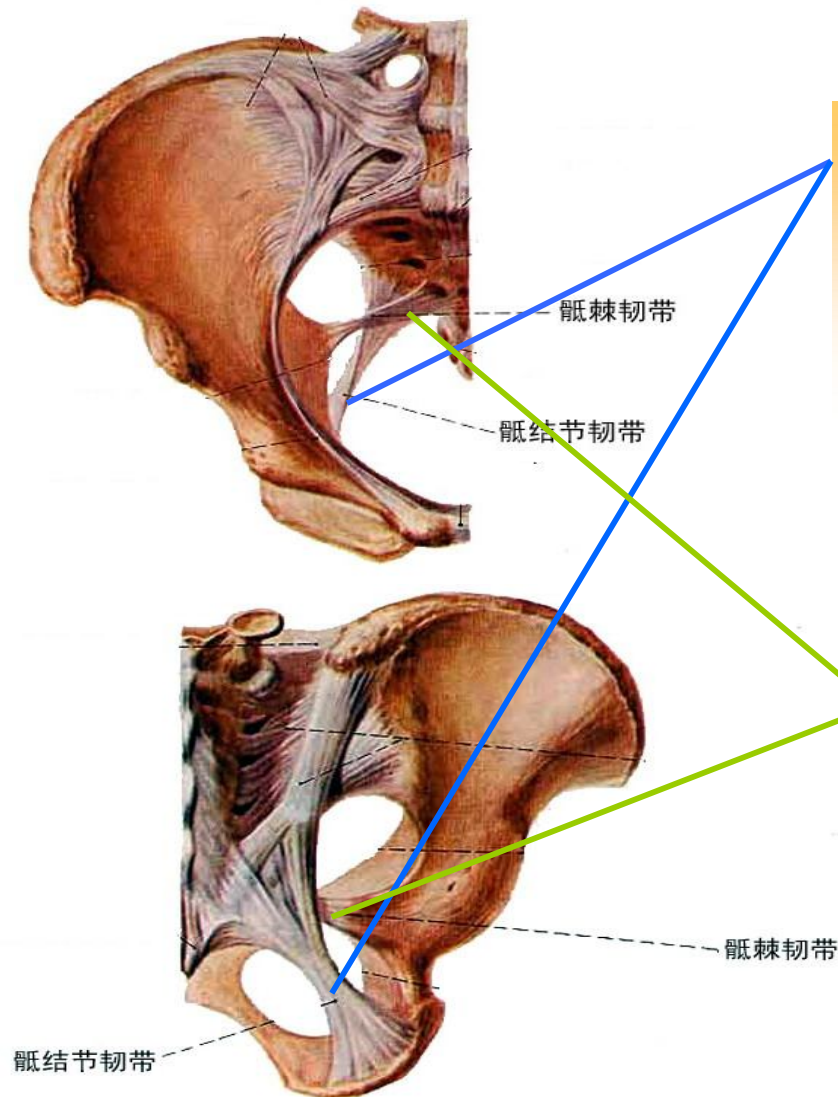
**Symphysis pubica**

耻骨联合





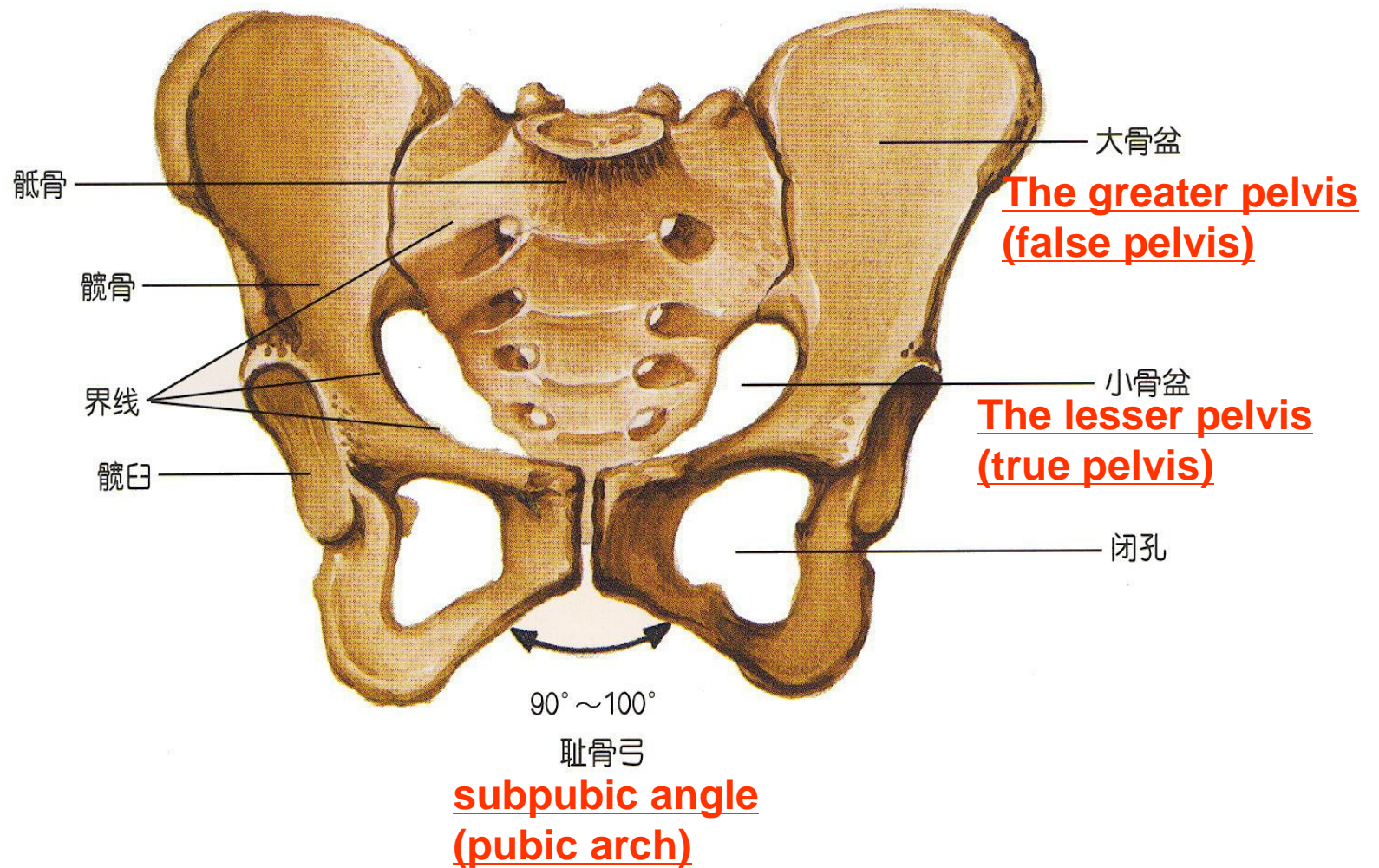
# Bony pelvis: The Ligaments



骶结节韧带 Lig. sacrotuberale  
attached to the ilium, sacral  
vertebrae and the ischial  
tuberosity

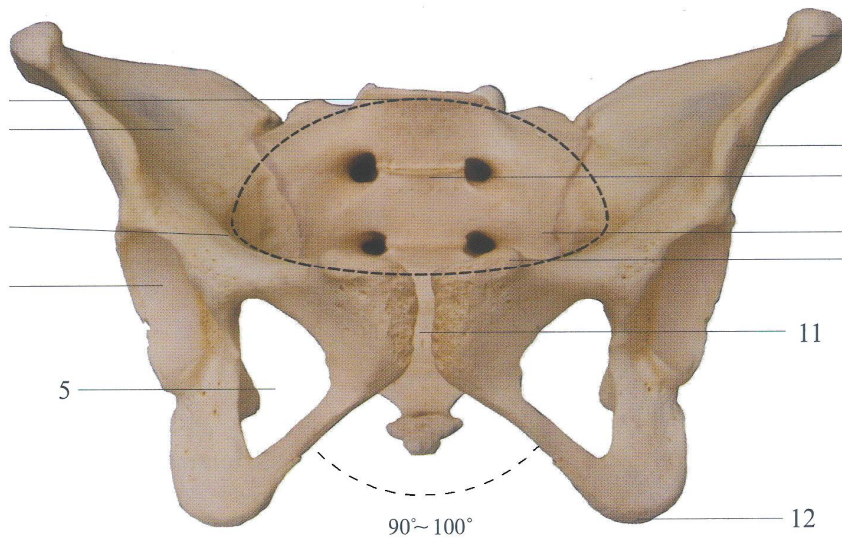
骶棘韧带 Lig. sacrospinale  
extending from the sacrum  
and coccyx to the spine of  
the ischium

# Bony pelvis:



# Bony pelvis: Planes

- Outline: connect the promontory of the sacrum with the superior margin of the pubis (耻骨联合上缘、髂耻缘及骶岬上缘的连线)
- Inlet
- Outlet
- Female pelvic cavity: broader and shallower





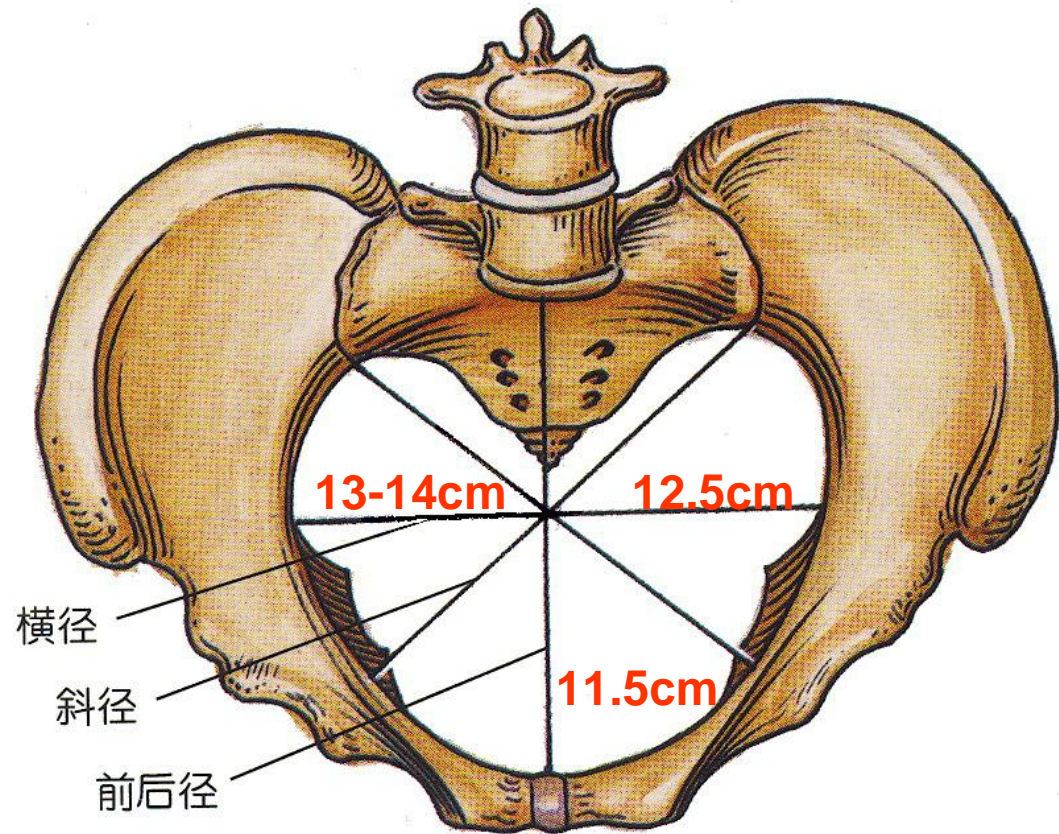
# The pelvic inlet

## Diameters of the pelvic inlet

Transverse diameter

Oblique diameter

The anteroposterior diameter



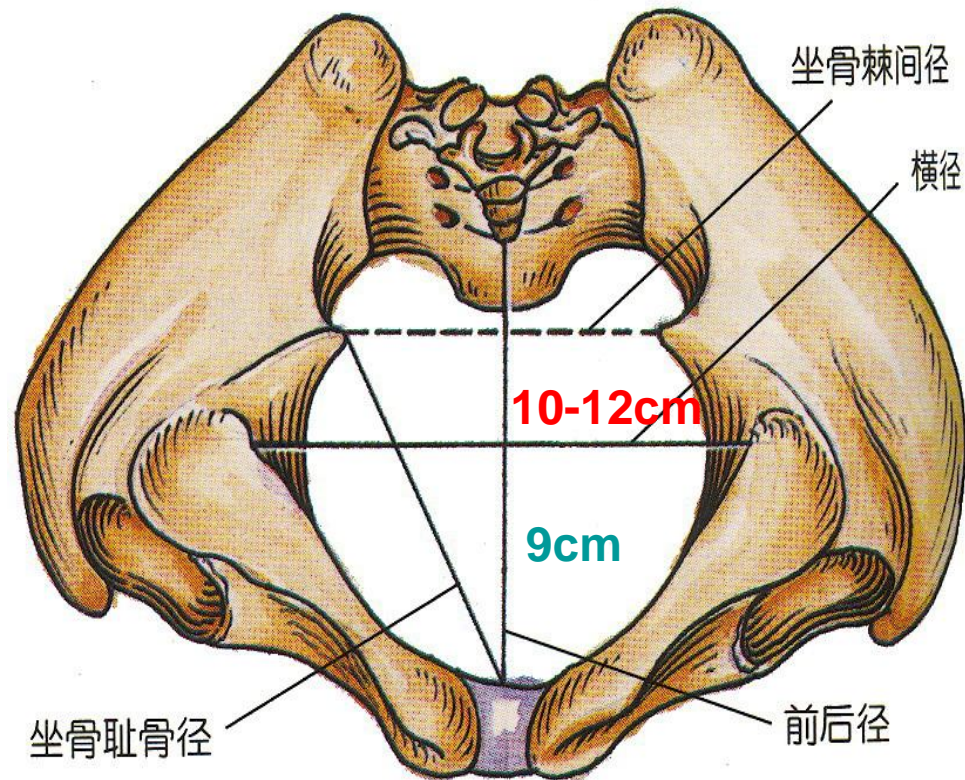
①上(入)口径线

# The pelvic outlet

## The diameters of the pelvic outlet

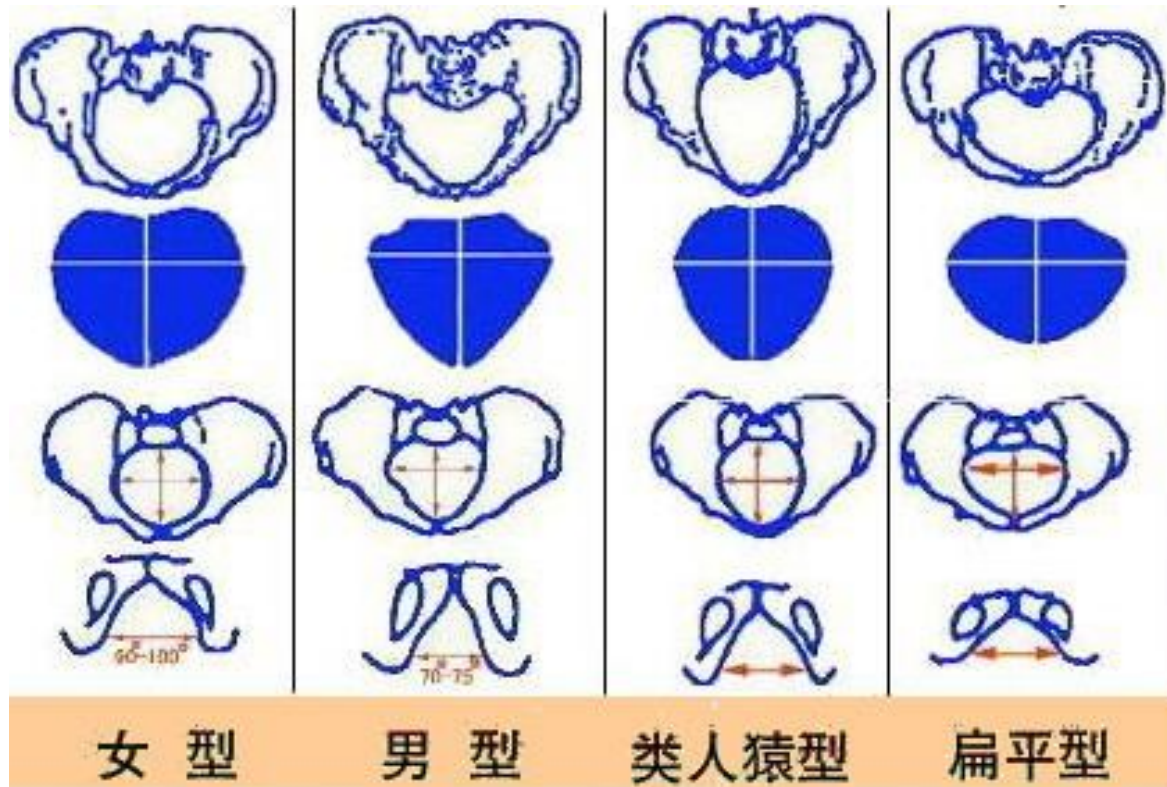
The anteroposterior diameter

The transverse diameter of the outlet



②下(出)口径线

# Types of pelvis



The female pelvic inlet is oval;

The pelvic cavity is broader and shallower,

The bony wall of the pelvic canal are more vertical

Subpubic angle is broader in the female pelvis.



# Female external genital organs

- anatomy
- Physiology

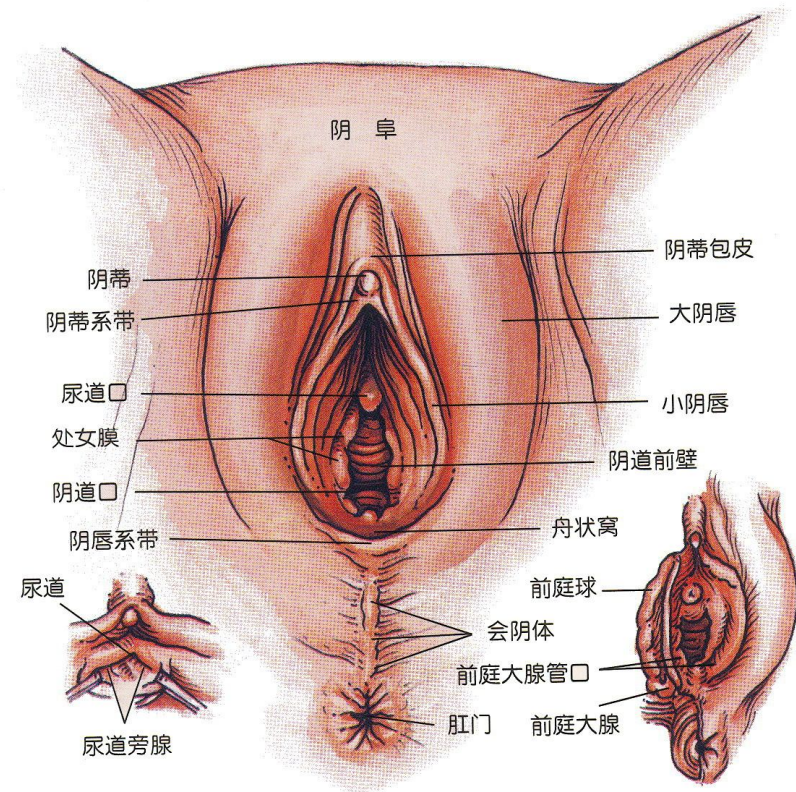
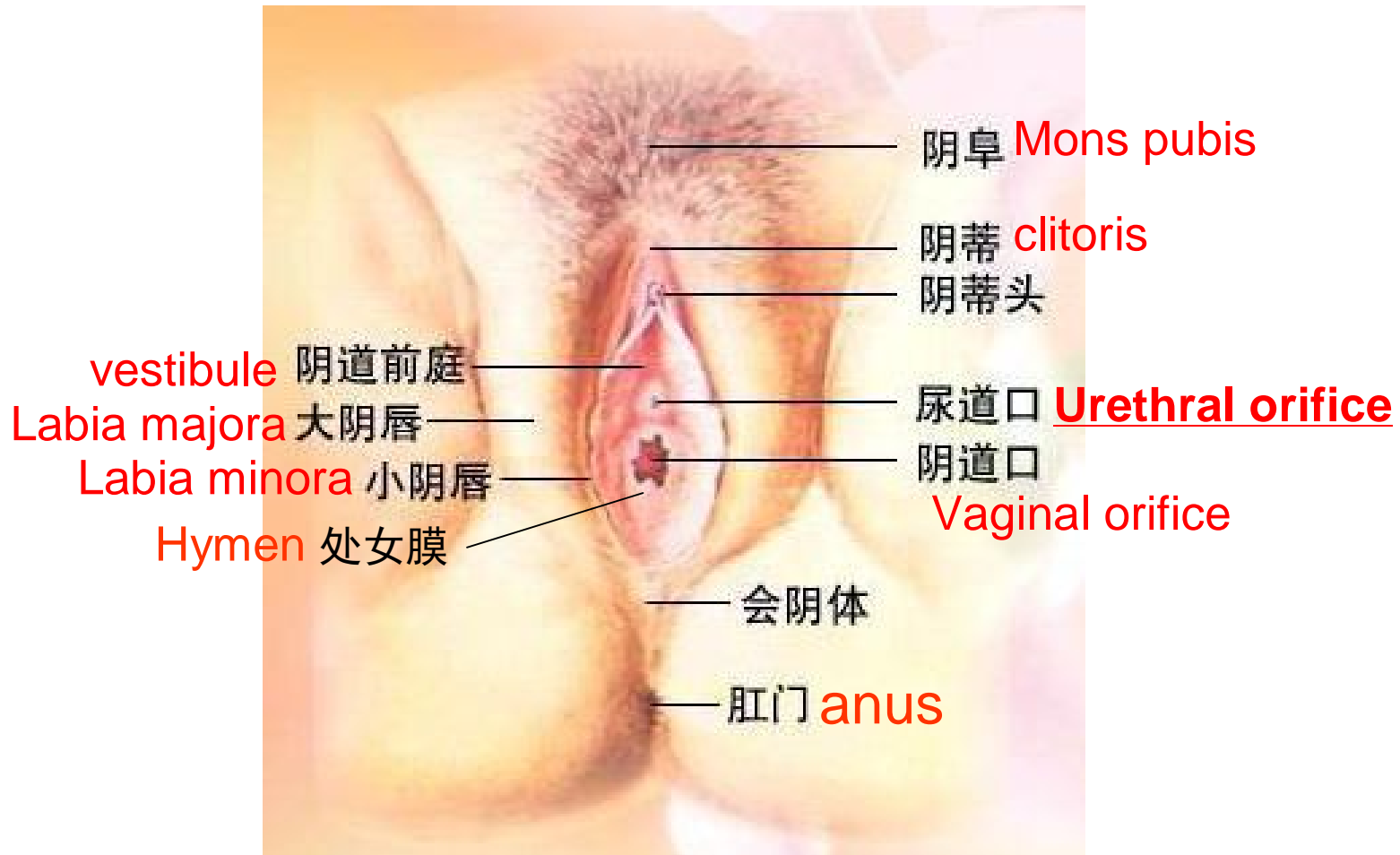


图 40-1 女性外生殖器

# External genital organs

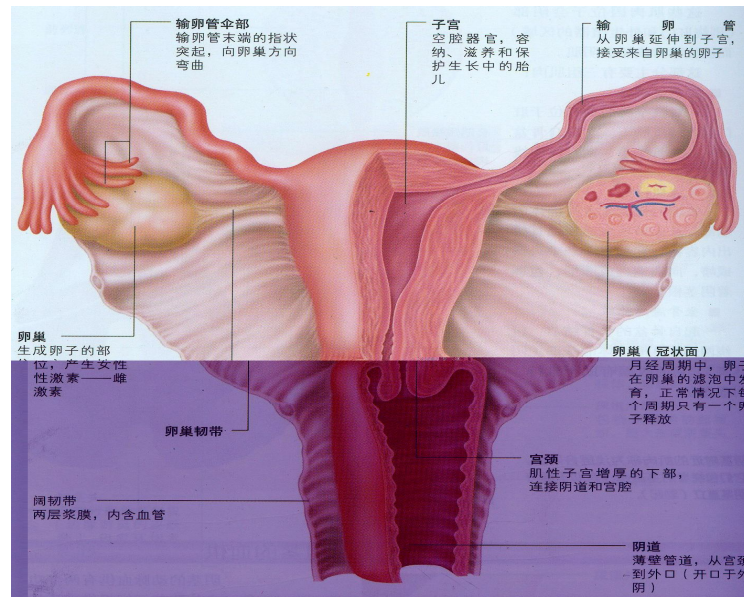
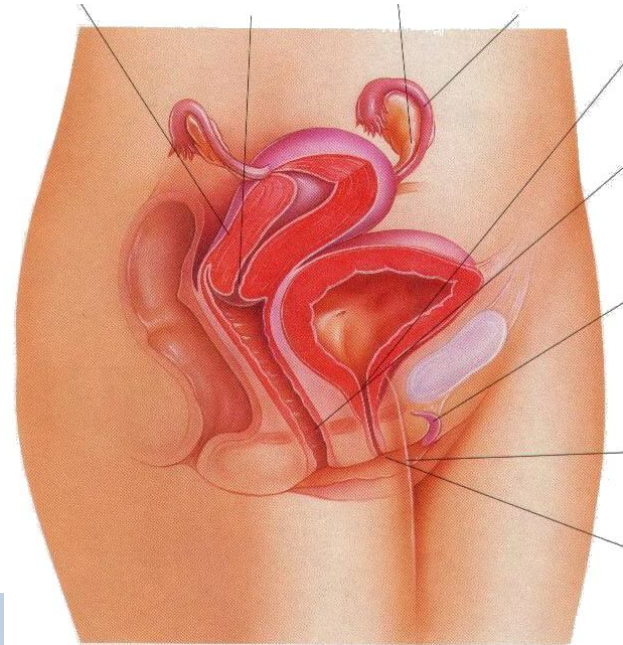
## External genitalia



**Vulva (The female urogenital triangle)**

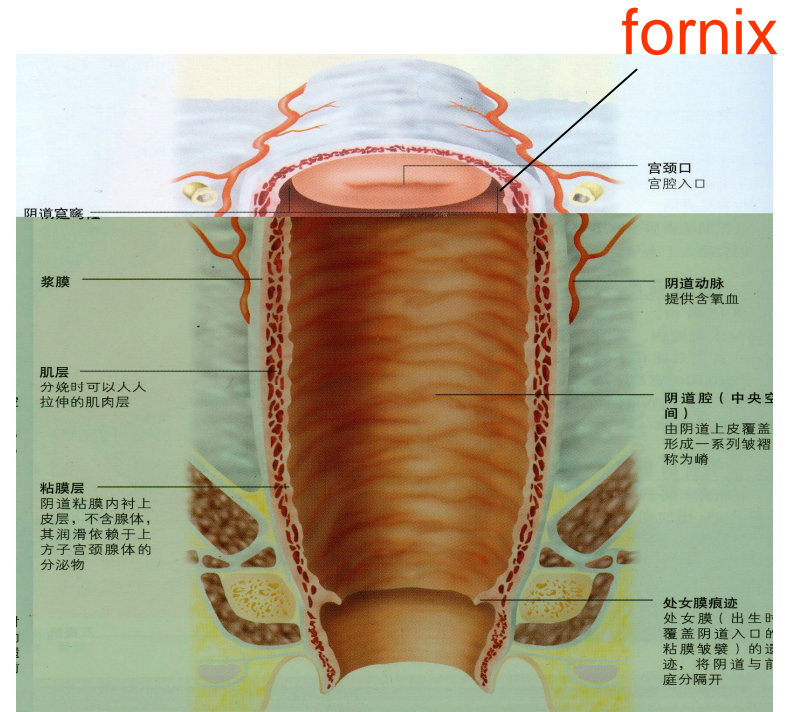
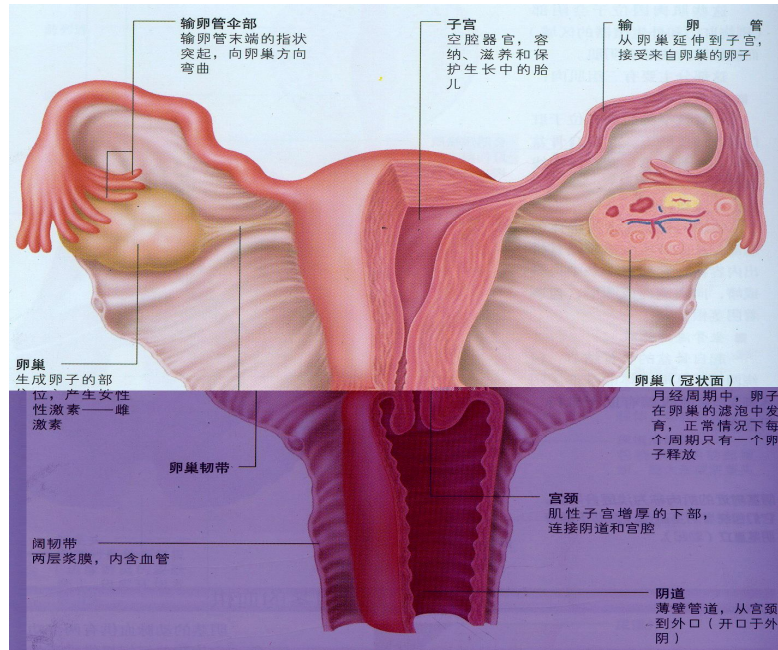
# Female internal genital organs

- 阴道(vagina)
- 子宫(uterus)
- 输卵管(fallopian tubes)
- 卵巢 (ovaries)





# Internal genital organs: Vagina





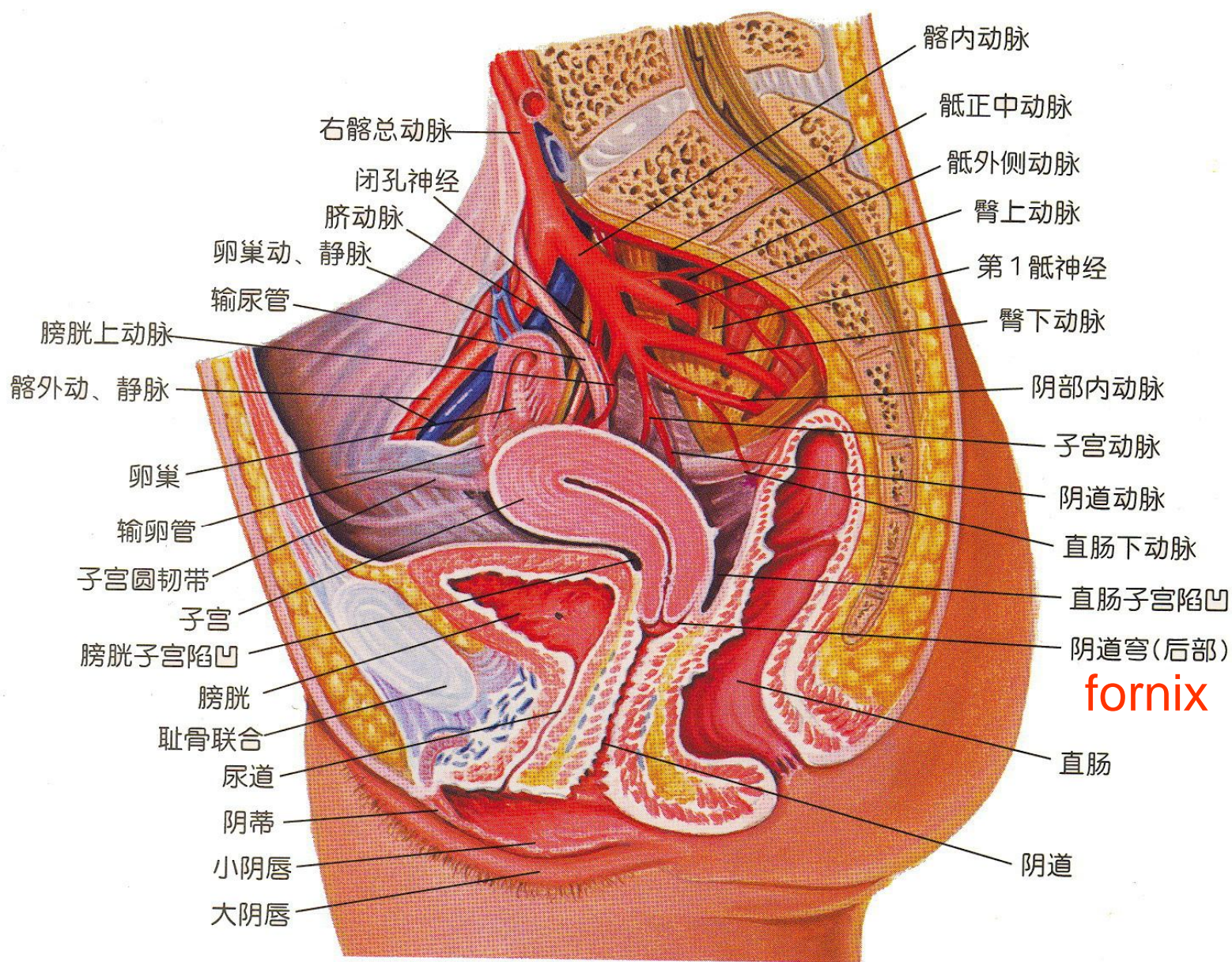
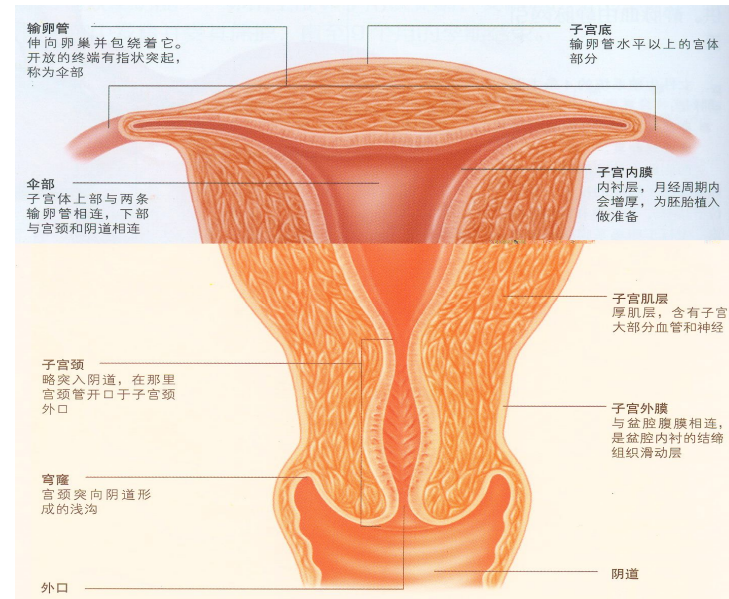
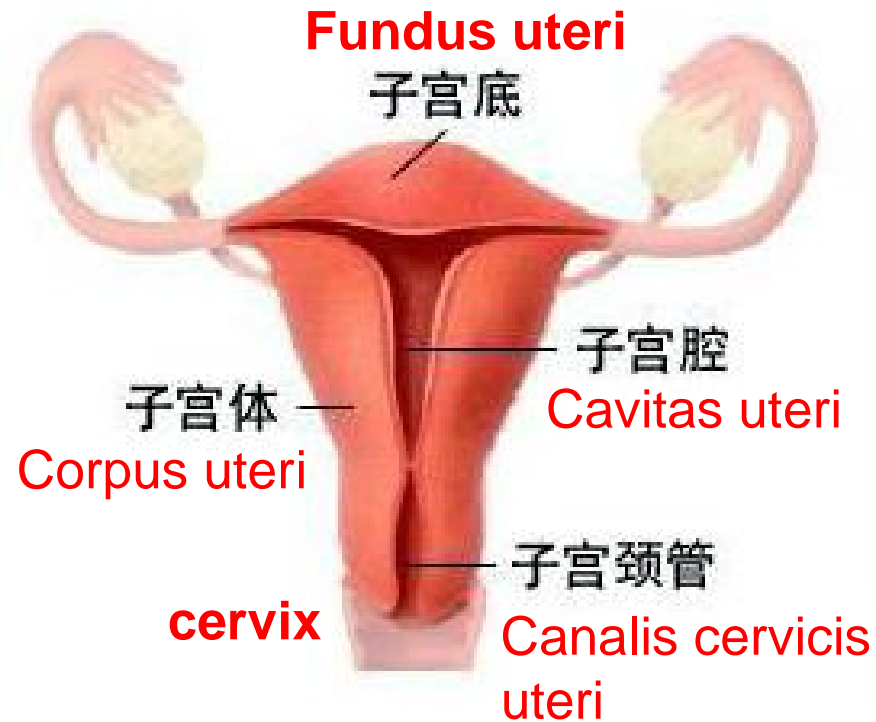


图 2-6 女性盆腔正中矢状切面



# Internal genital organs: Uterus



## Internal os

内口  
开口于子宫腔

坚韧的纤维组织

阴道侧穹窿

子宫颈管  
含有粘膜皱  
襞，称为掌  
状皱襞

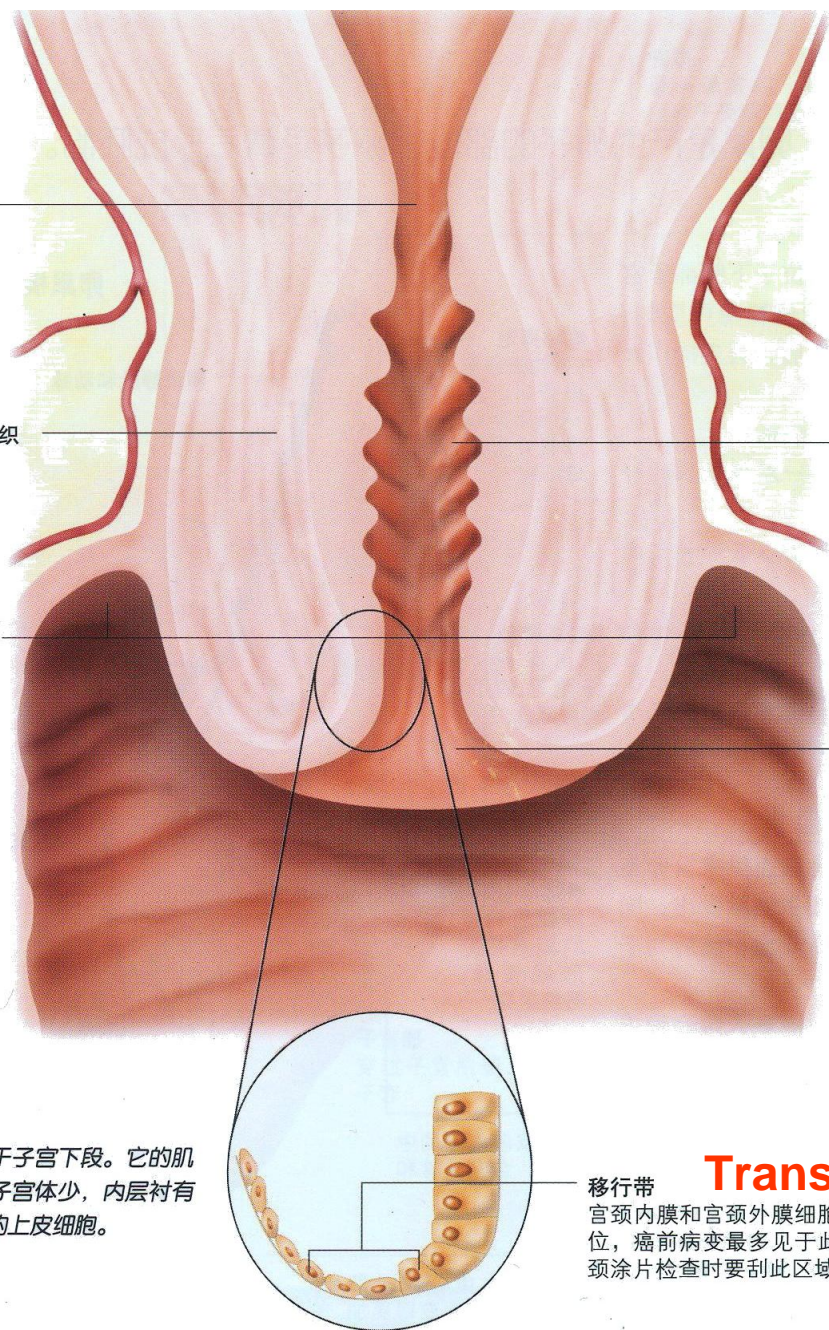
外口  
开口于阴道

## External os

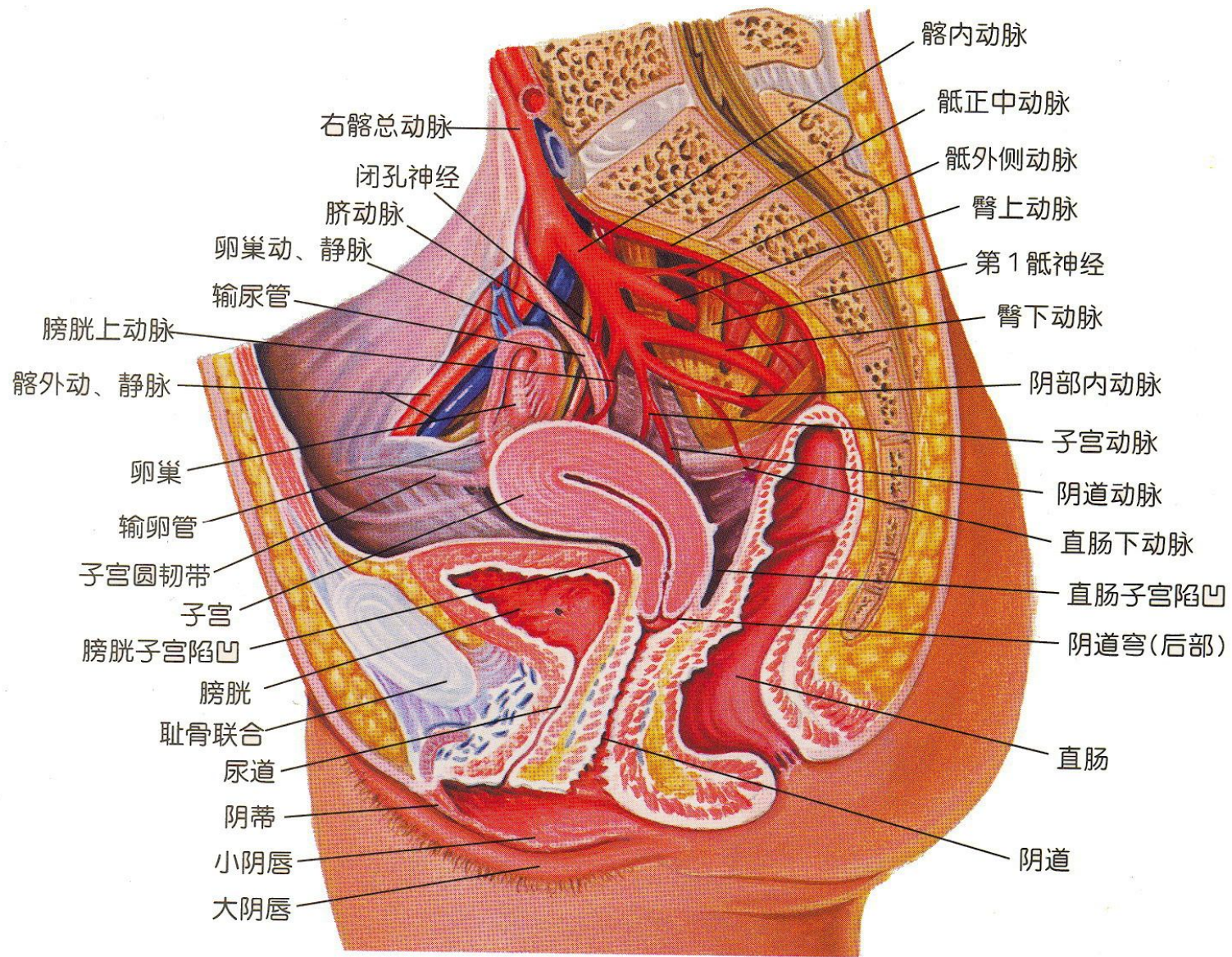
子宫颈位于子宫下段。它的肌  
肉组织较子宫体少，内层衬有  
两种不同的上皮细胞。

## Transition zone

移行带  
宫颈内膜和宫颈外膜细胞相接的部  
位，癌前病变最多见于此，所以宫  
颈涂片检查时要刮此区域

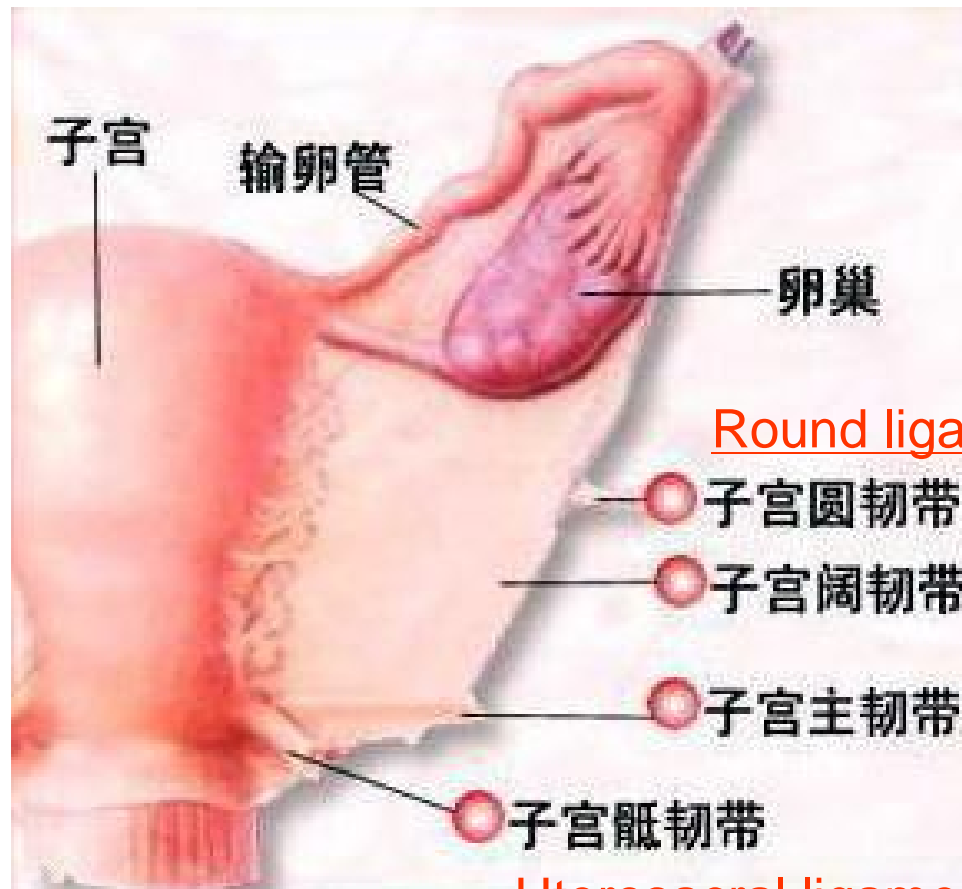






**Lateral view of the pelvic viscera**

# Ligaments



Round ligament

子宫圆韧带

Broad ligament

子宫阔韧带

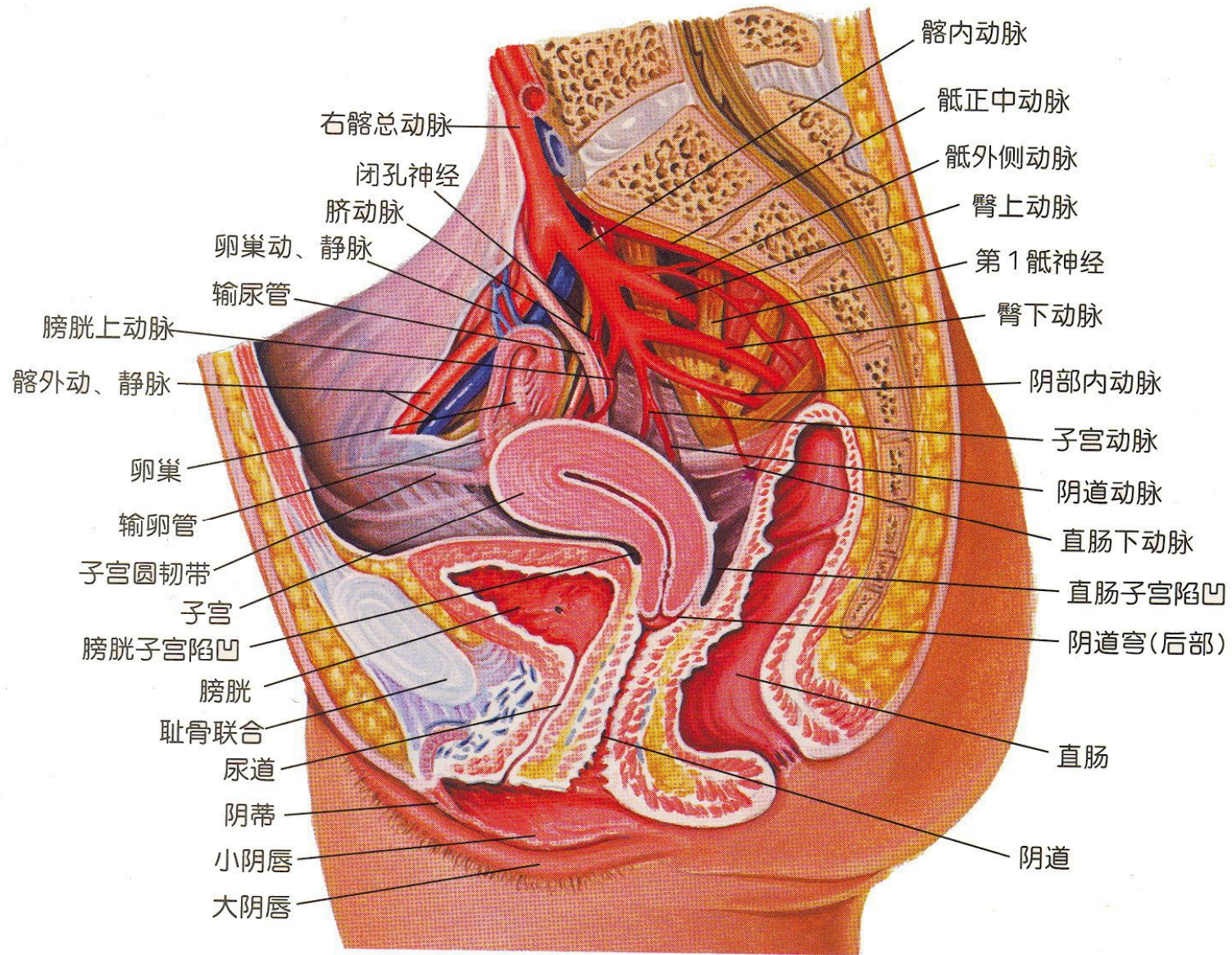
Cardinal ligament

子宫主韧带

Uterosacral ligament

子宫骶韧带

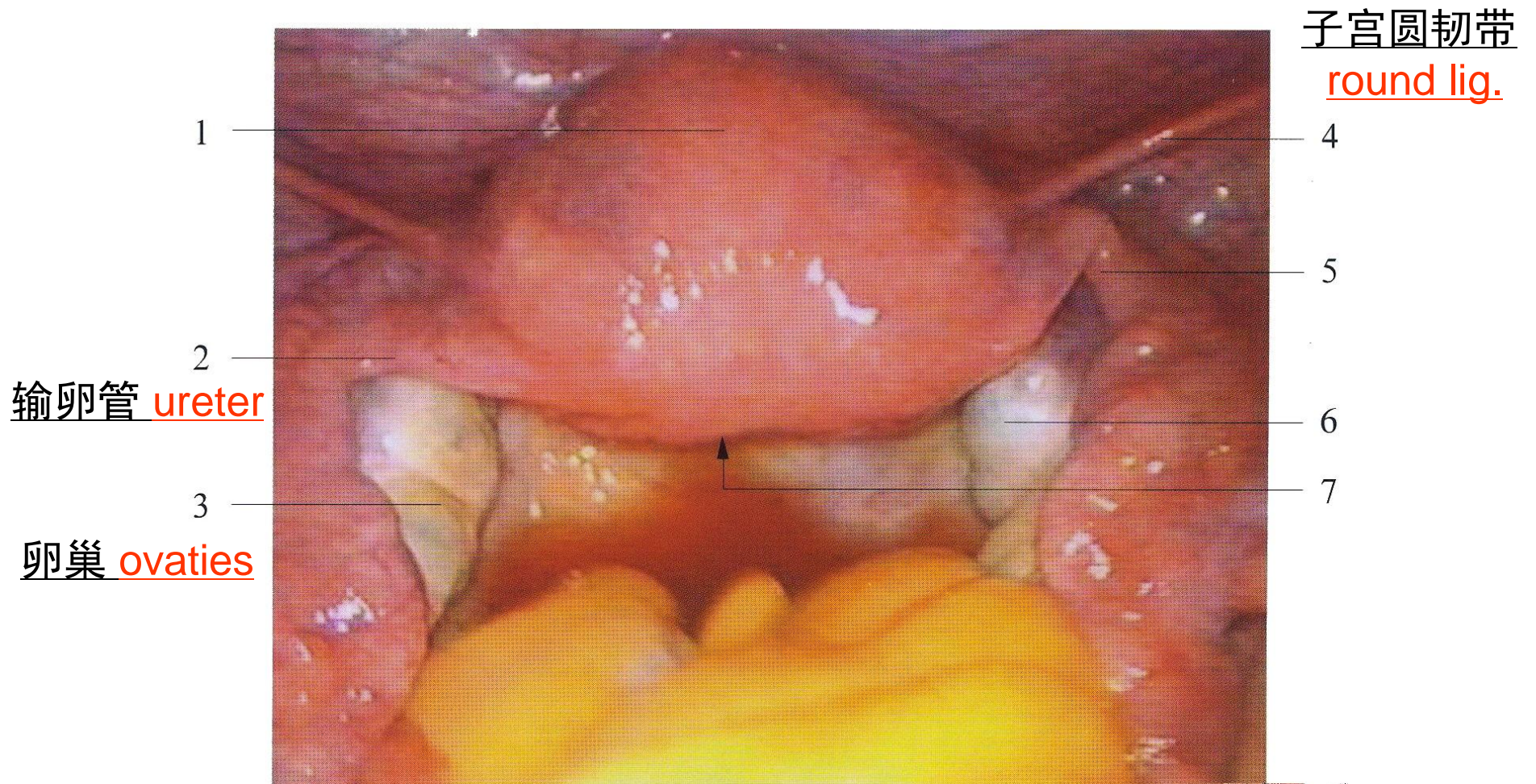




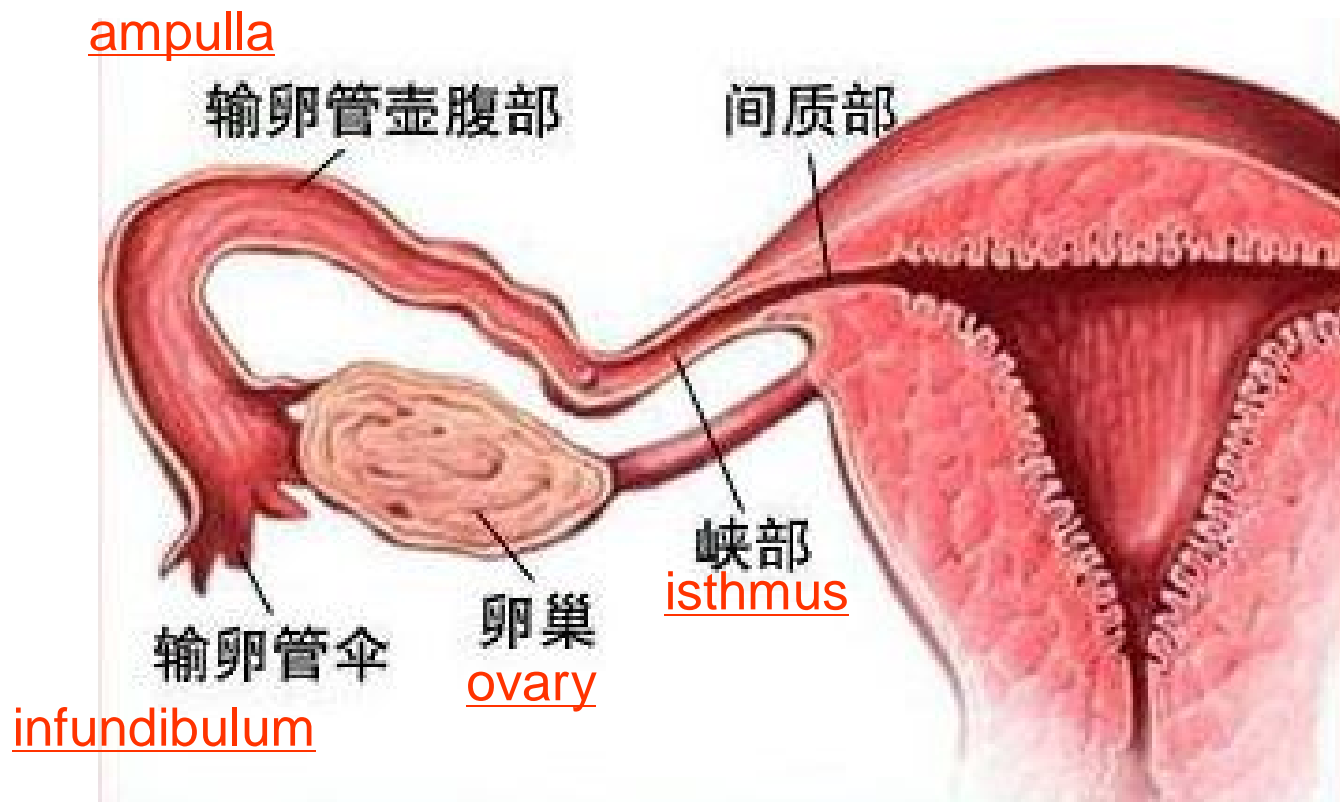
**Lateral view of the pelvic viscera**



# Laparoscopic view

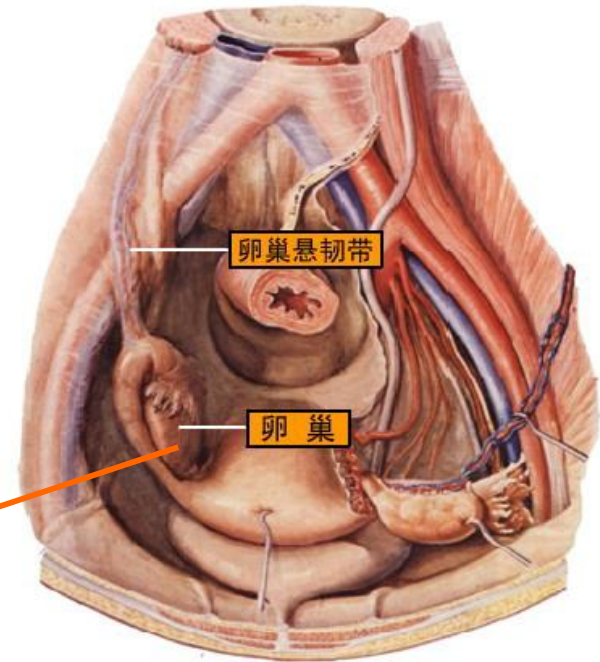


# Internal genital organs: Fallopian tube or Oviduct Ovary

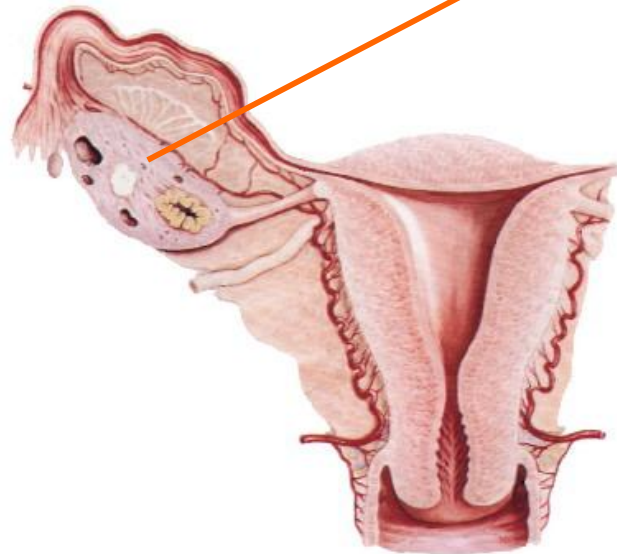




# Internal genital organs: Ovary



Ovary





# Adjacent organs

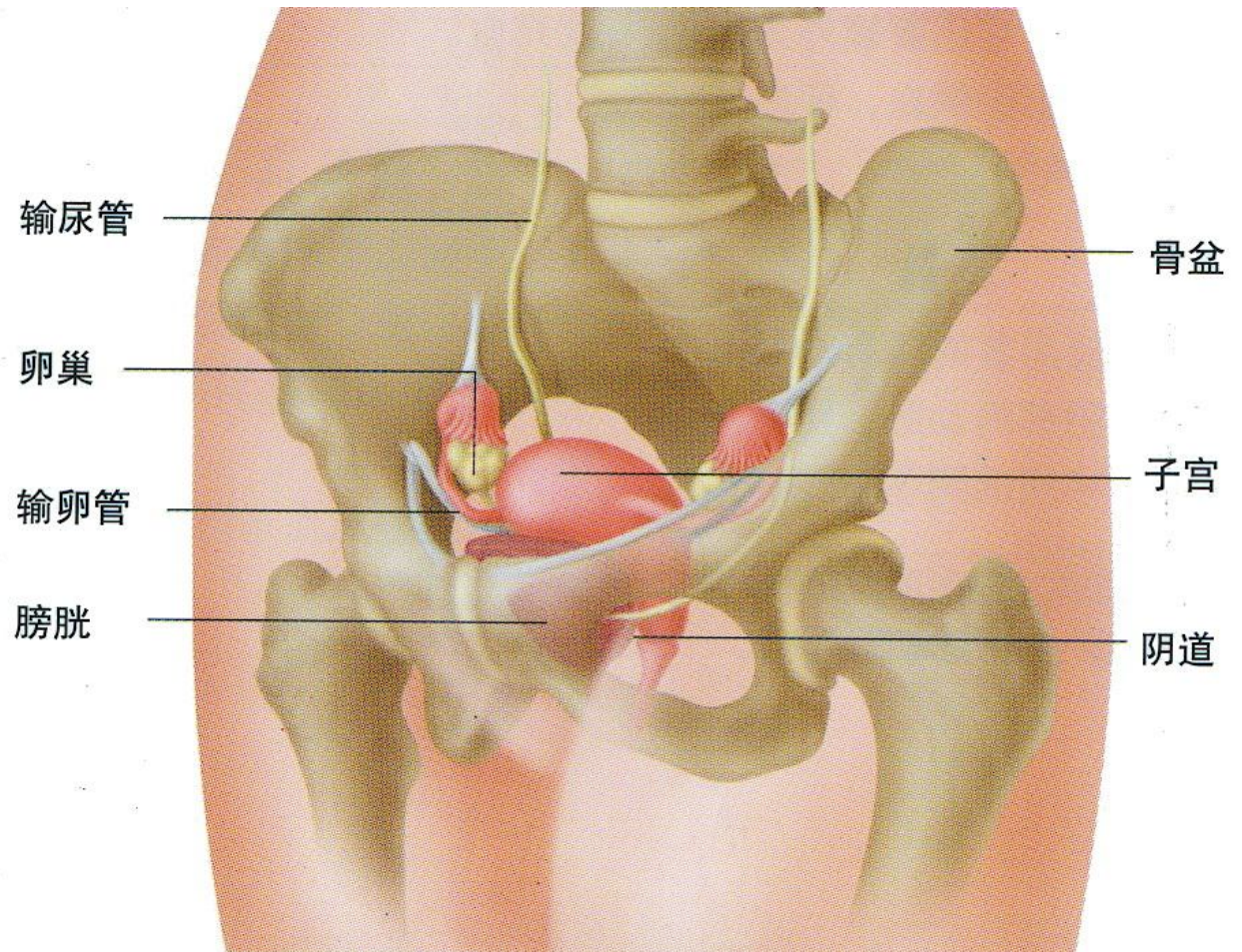
尿道 Urethra

膀胱 bladder

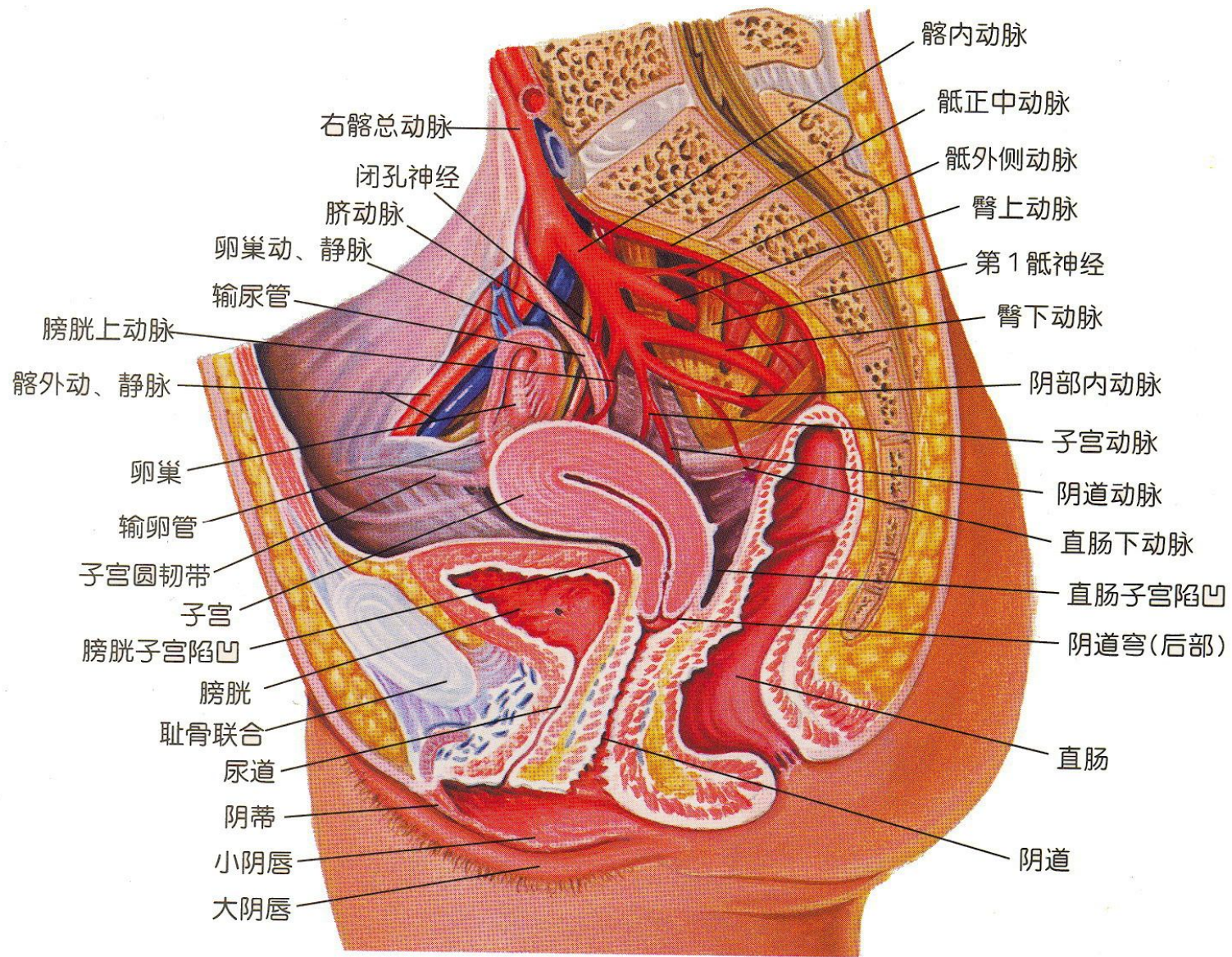
输尿管 ureters

直肠 rectum

阑尾 appendix

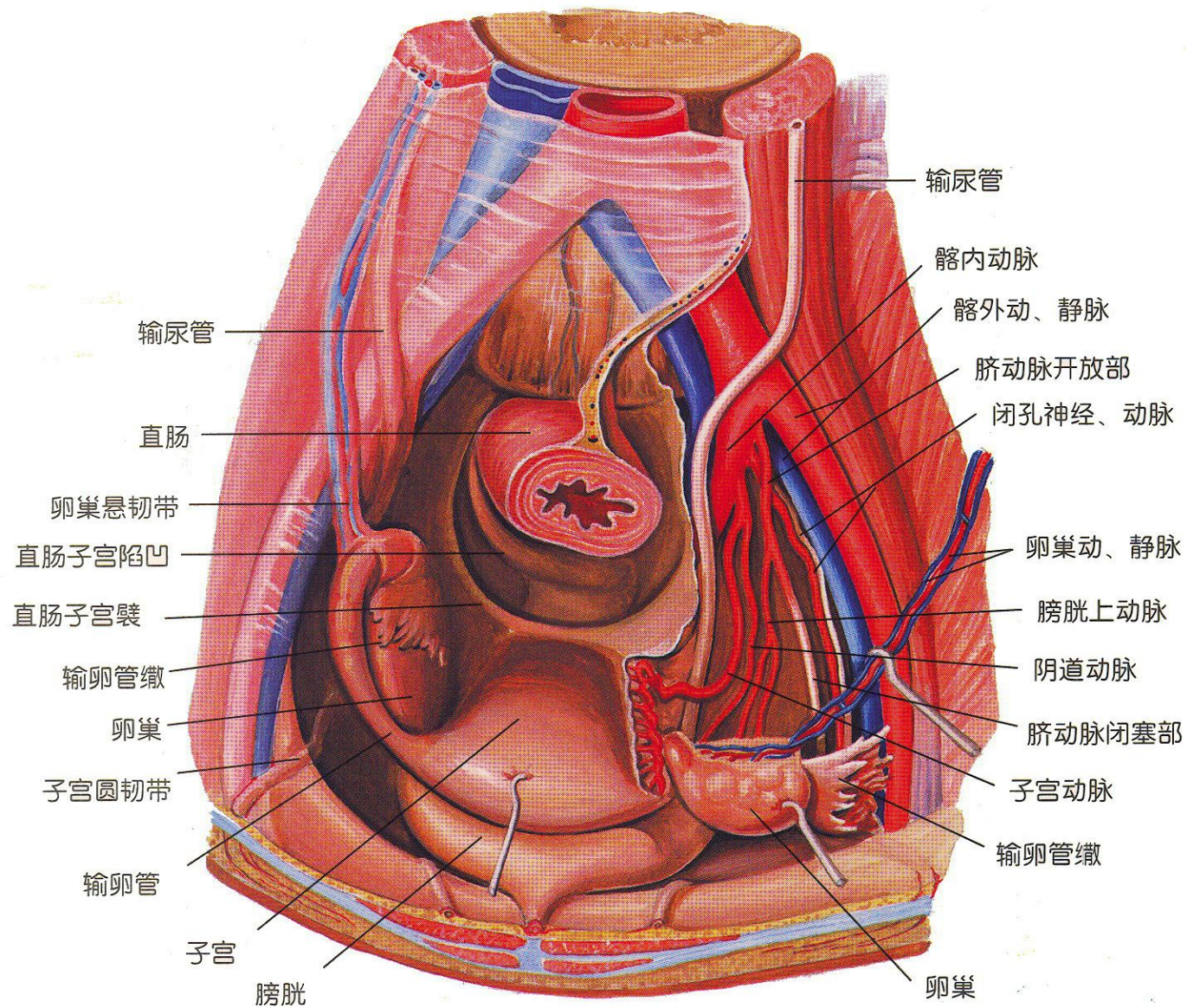






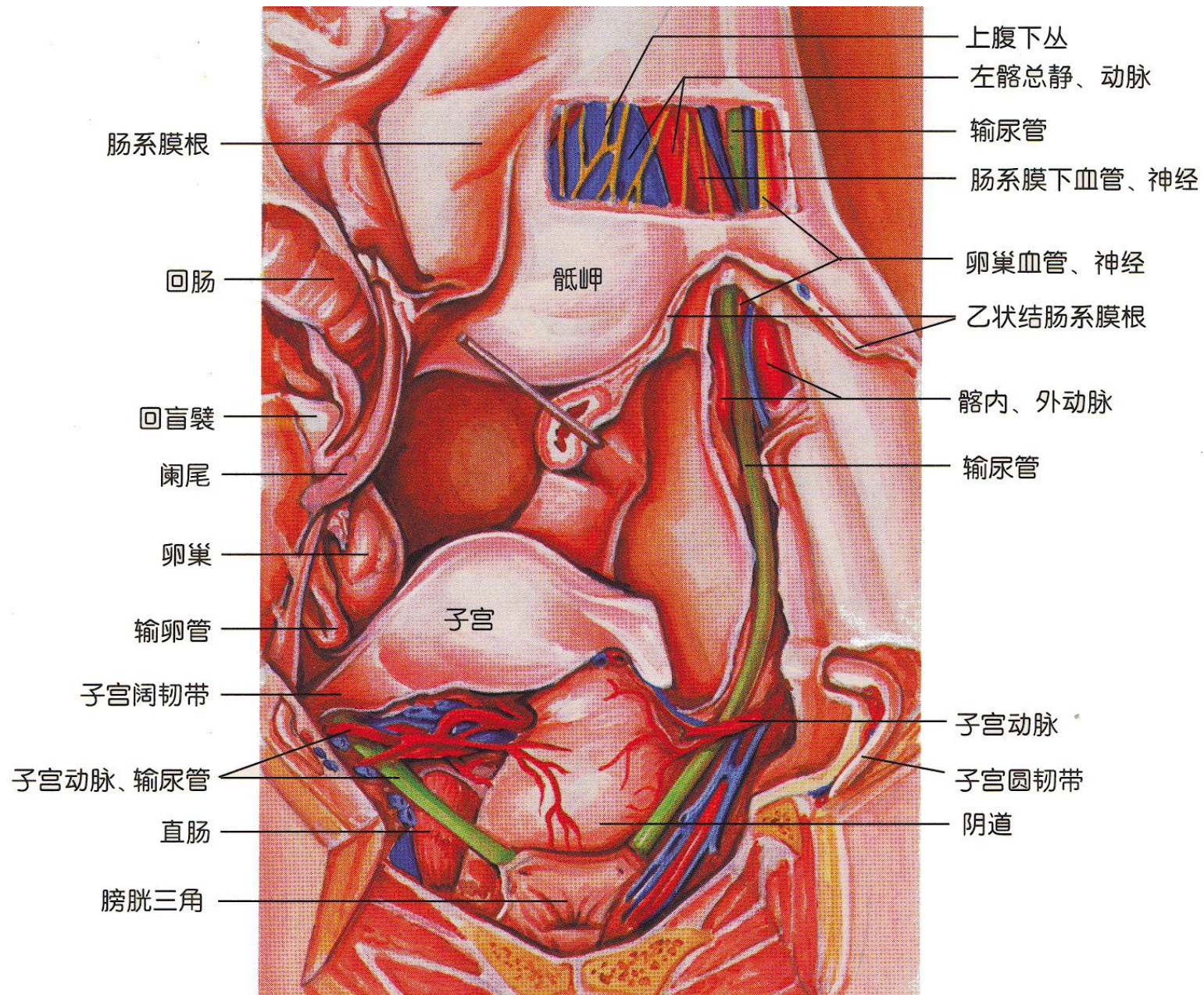
**Lateral view of the pelvic viscera**





**Superior view of the abdominal cavity**

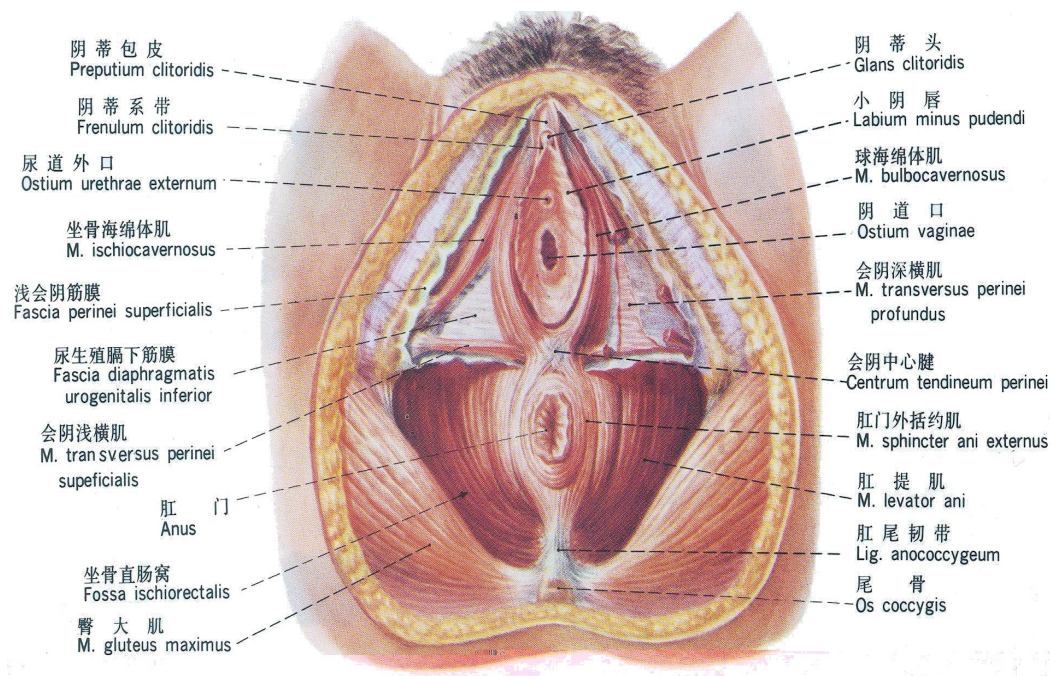




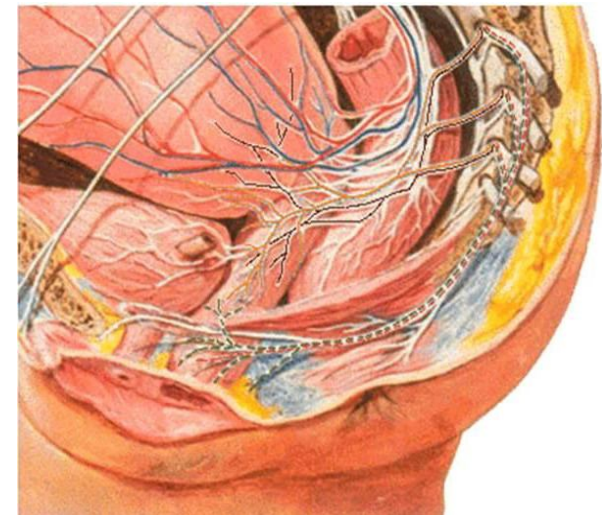


# Self - Study

- Blood vessels, lymphatic drainage, and nerves
- Pelvic floor



## Neuropathways in Parturition Pelvic Area Enlarged



## Problem- base learning (PBL)

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- In IVF-ET, the pathway of oocyte retrieval is by the way of the pouch of the Douglas, why ?

# **Obstetrics & Gynecology**

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## ***Chapter 2***

### **Female reproductive physiology**

### **女性生殖生理**



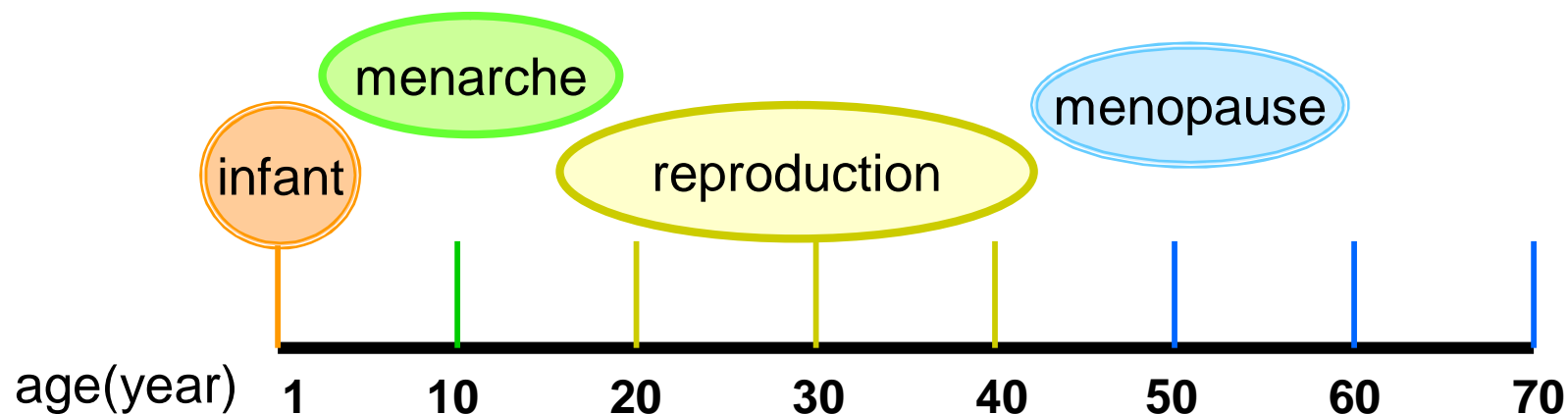
# Puberty and Menopause

## Puberty

- Adrenarche, growth spurt
- Thelarche, secondary sexual characteristics
- Menarche

## Menopause

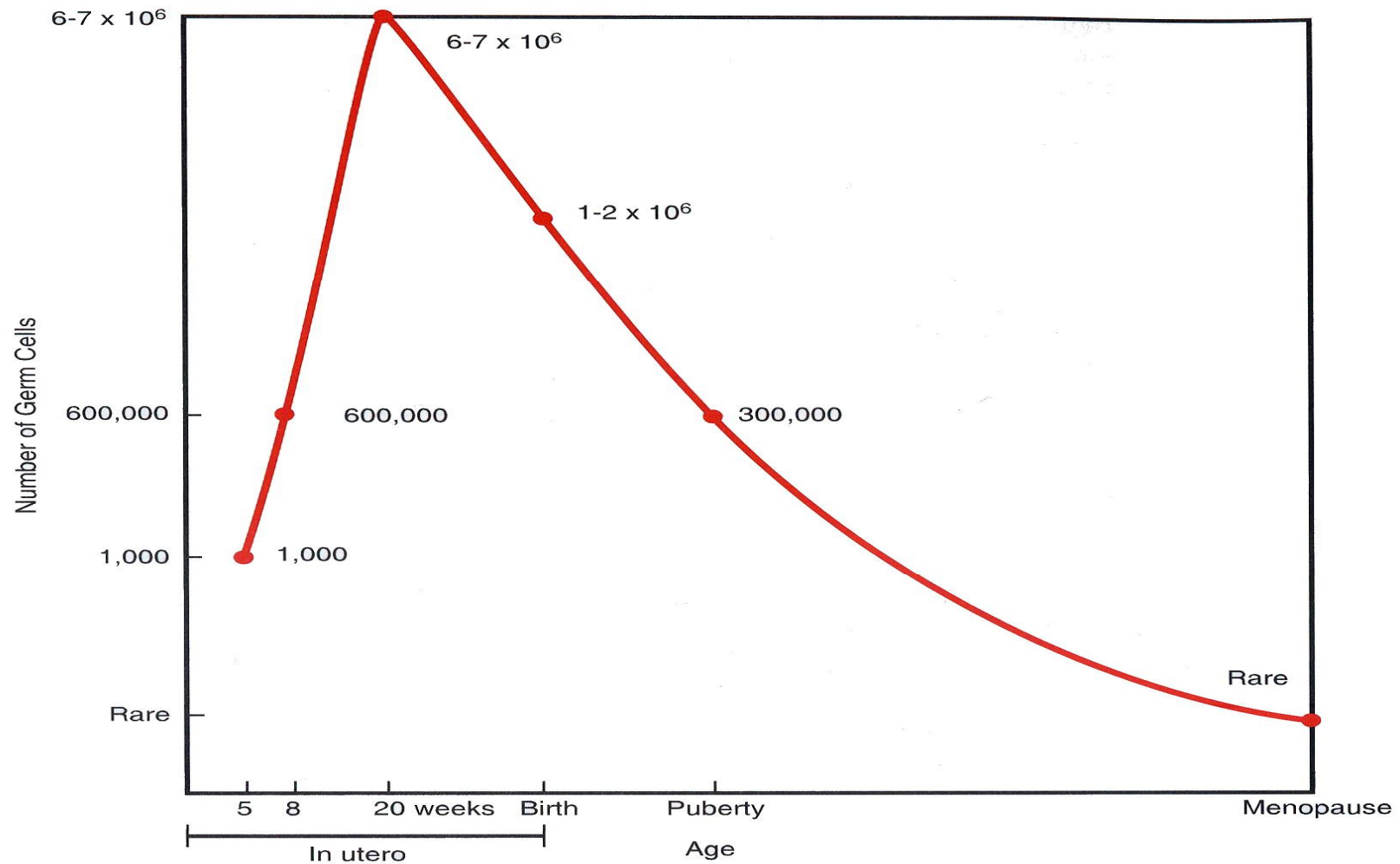
- The cessation of menstruation and ovulation
- Age 45-55 years



The reproductive life of women



# The number of oocytes in the ovary from birth to menopause



# From puberty to menopause



**Puberty :** from the onset of active gonads to the final maturation

**Reproduction:** menstrual cycle; ovarian cycle and uterine cycle

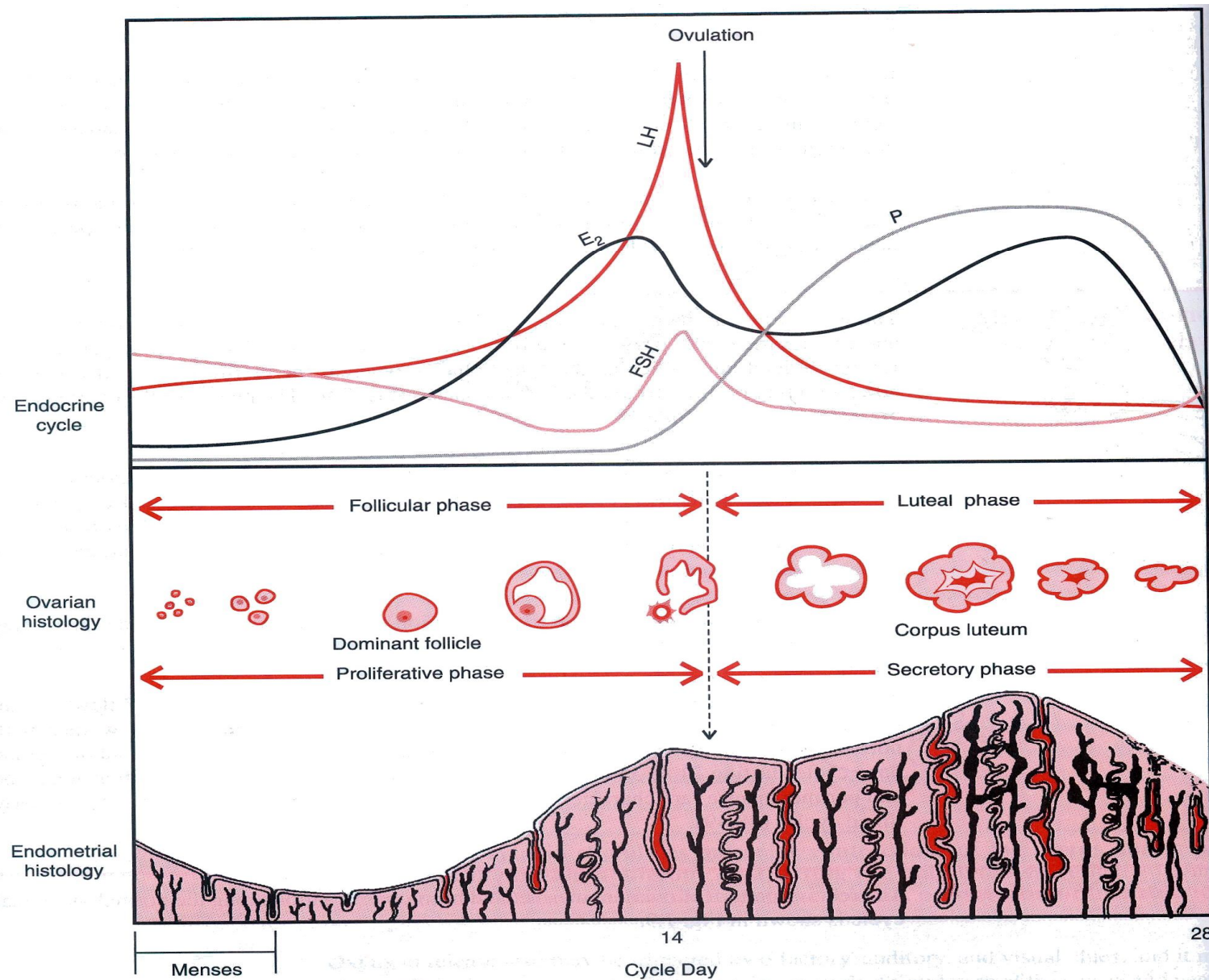
**Menopause:** the cessation of gonads function

# Menstrual cycle physiology

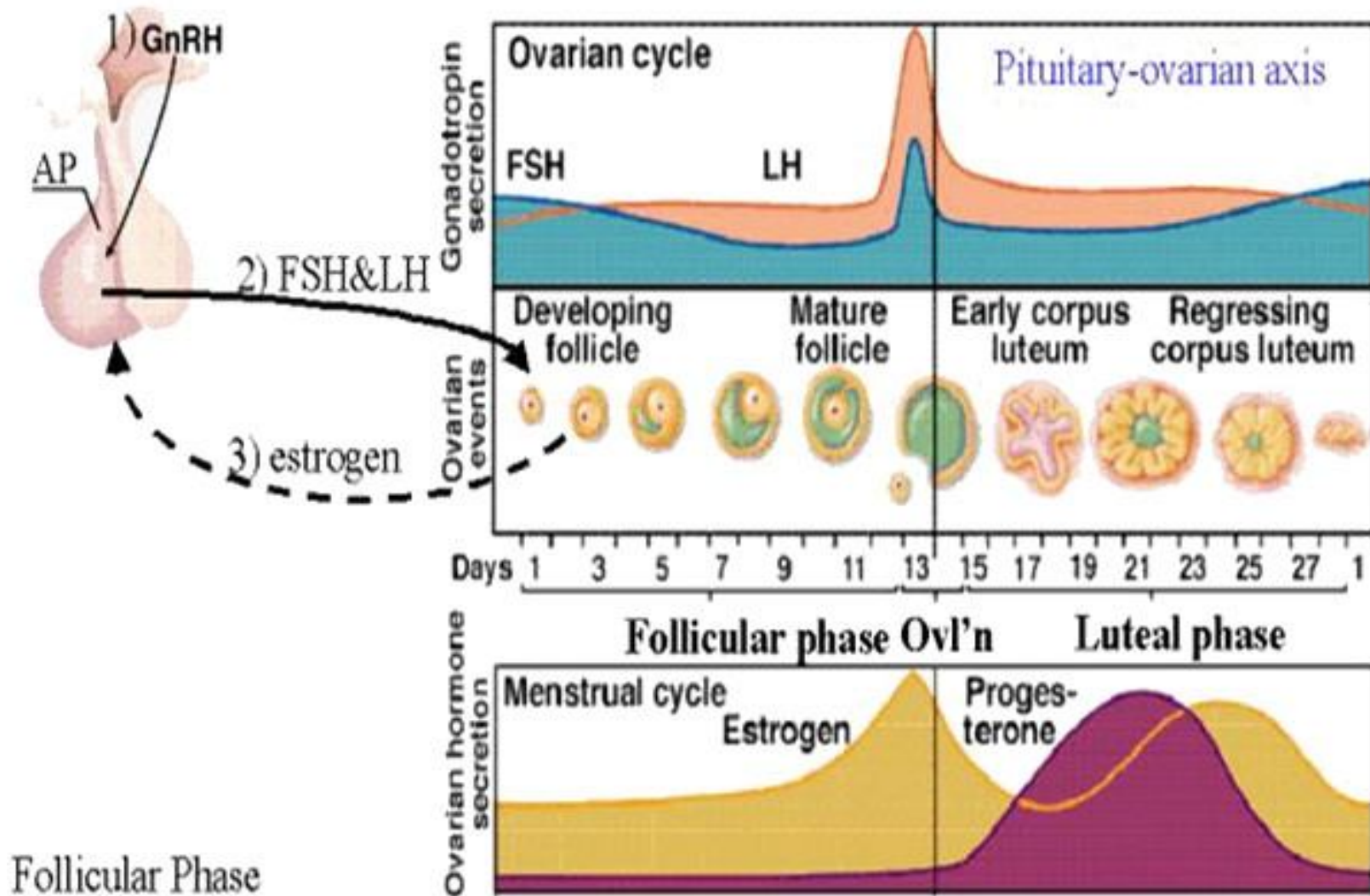
## Normal menstrual cycle

- **Ovarian cycle**
  - Follicular phase
  - ovulation
  - Luteal phase
- **Uterine cycle (endometrial cycle)**
  - Proliferative phase
  - Secretory phase
  - Menses

# Menstrual cycle physiology



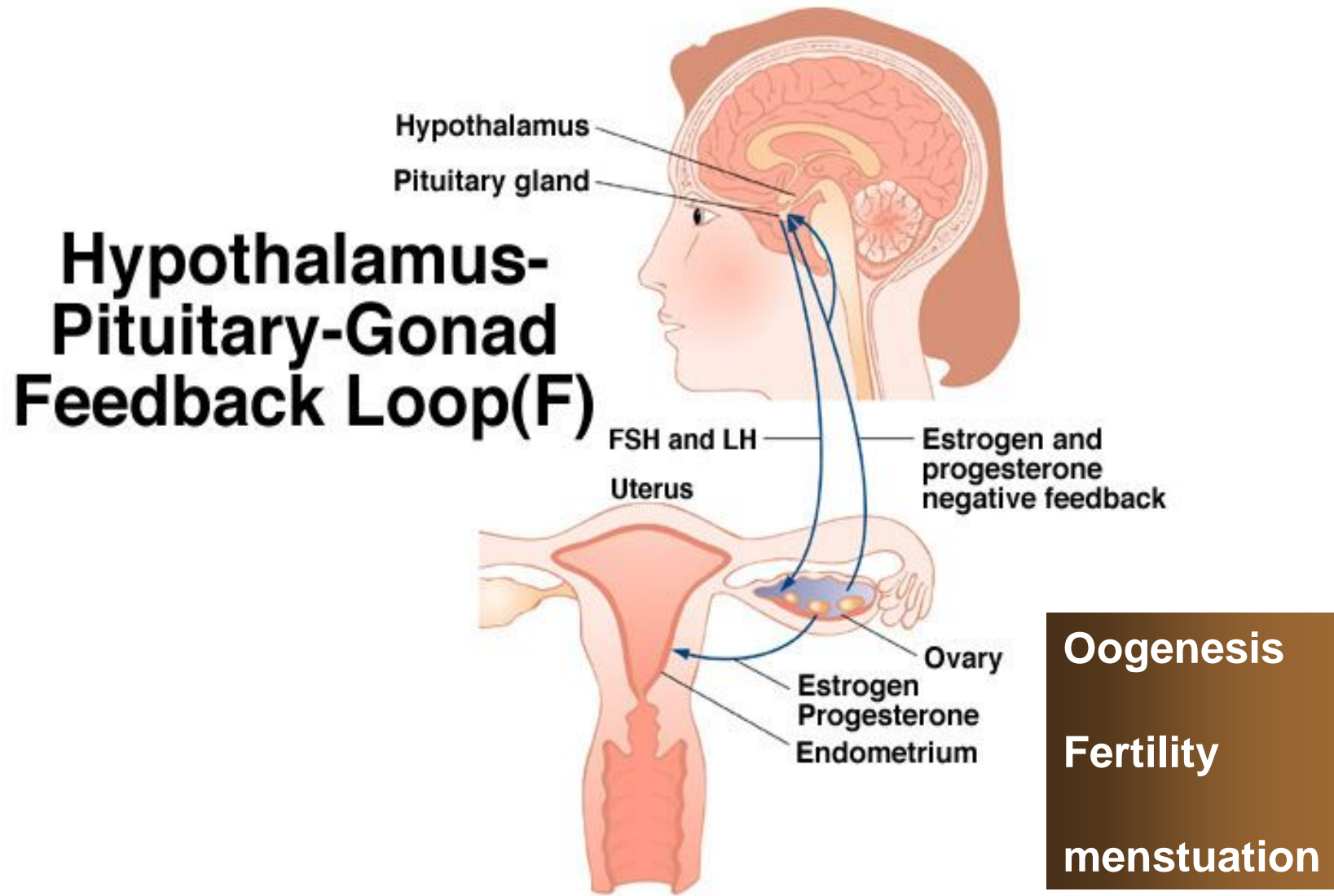
# Menstrual cycle regulation

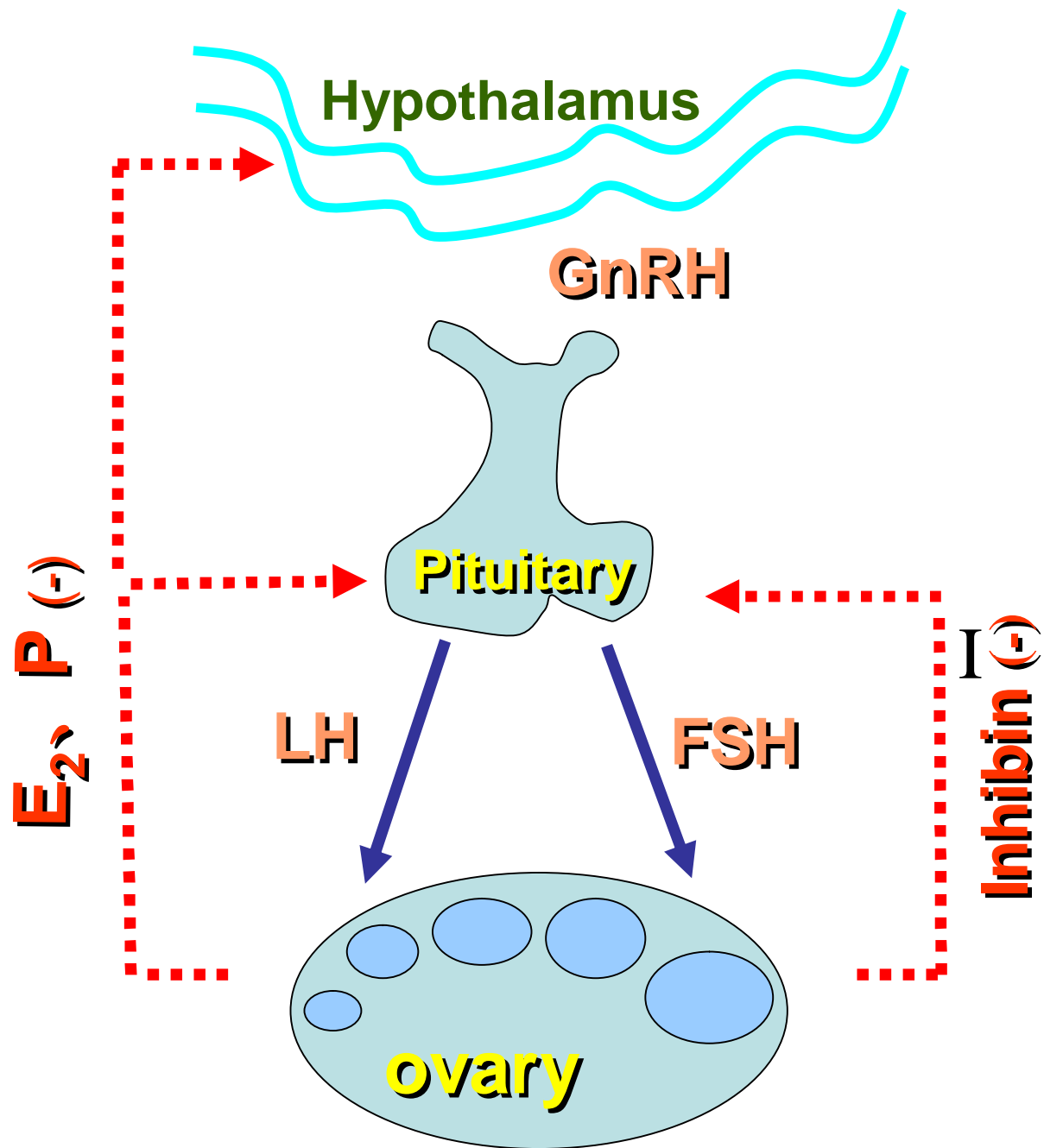




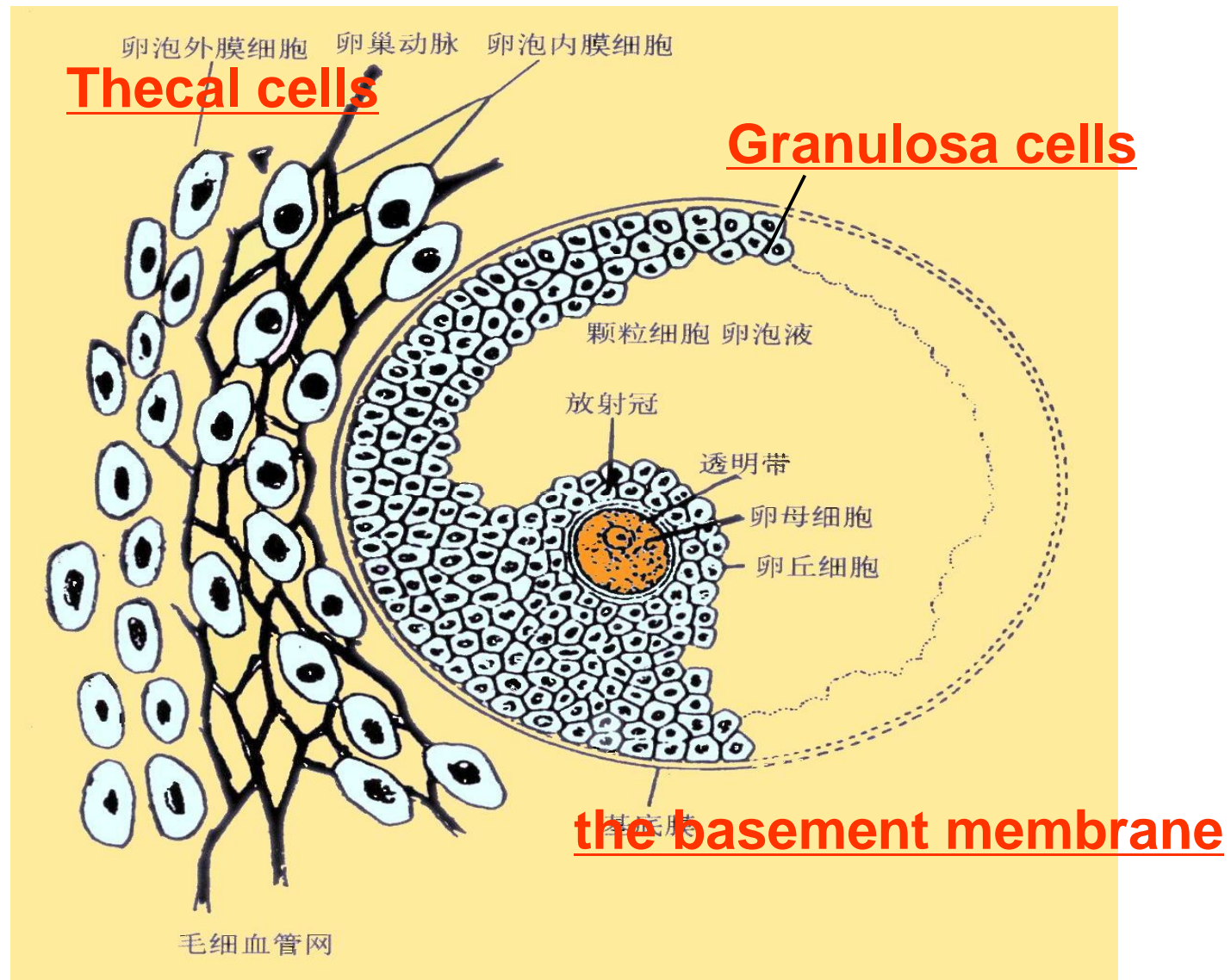
# Hypothalamus- pituitary- ovary (HPO) axis

Hyde/DeLamater *Understanding Human Sexuality*, 6e. Copyright © 1997. The McGraw-Hill Companies, Inc. All Rights Reserved.



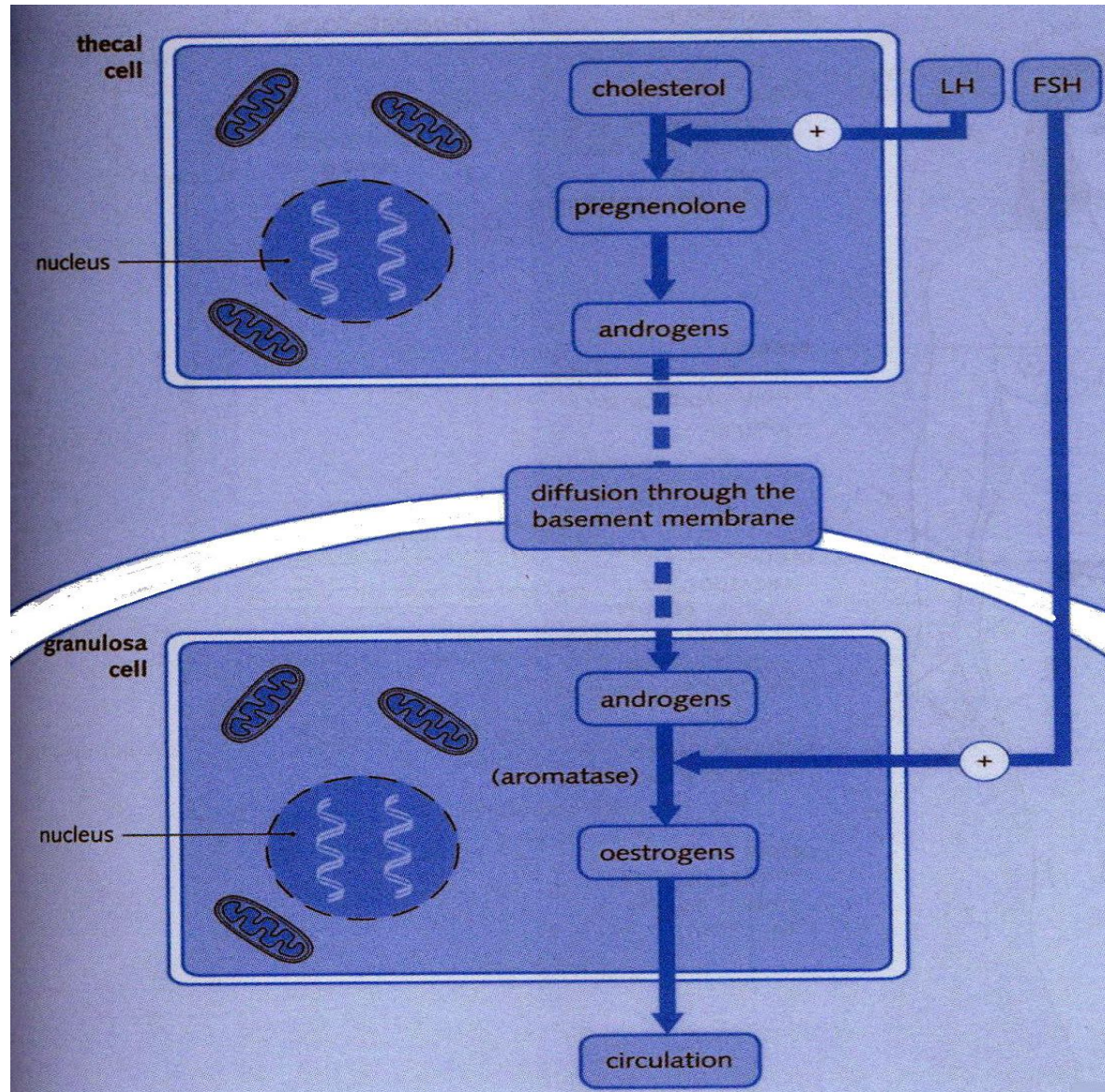


# The two-cell two gonadotrophin theory





# The two-cell two gonadotrophin theory



# Ovarian sex steroids ( Hormones )

## Oestrogens, e.g. oestradiol

1. Development of the reproductive organs and secondary sexual characteristics.
2. Proliferation of the functional layer of uterus endometrium.

## Progestogens, e.g. progesterone

1. Maintenance of the uterine endometrium.
2. Stimulation of the uterine secretions

## Androgens, e.g. androstenedione

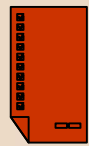
act with adrenal androgen to promote pubic and axillary hair growth during puberty

# Problem- base learning (PBL)

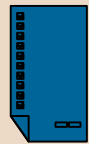
- In a woman with irregular menstrual cycle, what do you firstly suspect?



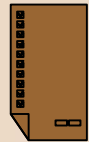
# References



**NOVAK Gynecology** (the 14th edition) ,Jonathan S. Berek , Lippincott Williams & Wilkins ,2007



**Anatomy. 2<sup>nd</sup> edition**, Dykes, Ameerally, Mosby. 2003



Sanders, Debusse: **Endocrine & Reproductive systems**. Mosby. 2002

**END**